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Vol. 70, NO. 6 OAK PARK, ILL., DECEMBER, 1936 $3.00 a Year

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Entered as Second-class Matter July 21, 1919, at the Post Office, Oak Park, Illinois, under the Act of March 8, 1879. Acceptance for mailing at special rate of postage provided for in Section 1102, Act of October 8, 1917, authorized July 15, 1918.

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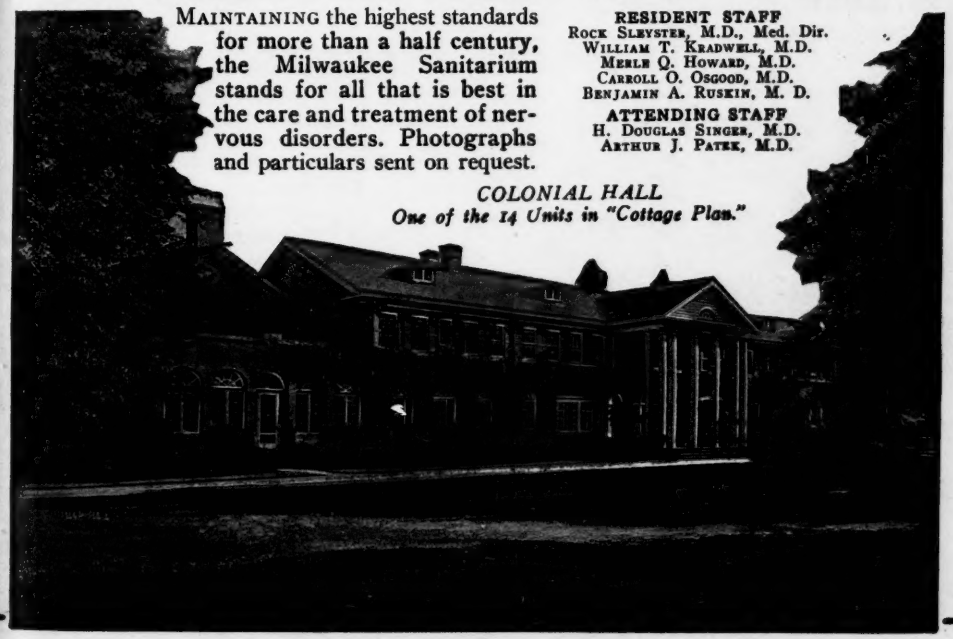

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ILLINOIS MEDICAL JOURNAL

THE OFFICIAL ORGAN OF

THE ILLINOIS STATE MEDICAL SOCIETY

VOL. 70 OAK PARK, ILL., DECEMBER, 1936 No. 6

ILLINOIS MEDICAL JOURNAL

Published monthly by the Illinois State Medical Society under the direction of the Publication Committee of the Council.

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Membership correspondence to Dr. Harold M. Camp, Monmouth, Ill.

Society proceedings and news items and changes in the mailing list to Dr. Henry G. Ohls, Managing Editor, 1618 Juneway Terrace, Chicago.

Subscription price of this JOURNAL to persons not members of the Illinois State Medical Society is $3.00 per year, in advance, postage prepaid, for the United States, Cuba, Porto Rico, Philippine Islands, Hawaiian Islands and Mexico. $4.00 per year for all foreign countries included in the postal union. Canada, $3.50. Single current copies, 50 cents.

Editorials

EFFECT OF OLD AGE PENSION TAXES UPON PHYSICIANS AS DEVELOPED THROUGH THE SOCIAL SECURITY ACT

Physicians are facing a new and additional tax both upon revenue and patience as a partial means of financing the old age benefit provisions of the new Social Security Act.

Immediate interest of doctors is focussed upon regulations published by the Bureau of Internal Revenue and which directly affect any doctor employing a stenographer, a switchboard operator, a reception clerk, laboratory technicians and employees, office nurse or assistant, and possibly a chauffeur. This last item would depend upon whether a "chauffeur" could come under the excepted classification of "domestic service in a private home."

For the stipulated employments outside the old age benefit provisions of the Social Security Act are listed (in the line of closest tangency to physicians' interests) as "agricultural labor; domestic service in a private home; casual labor not in the course of the employer's trade or business; service performed by an individual who has attained the age of 65; service performed in the employ of the United States or of any state or subdivision or instrumentality of either; and service performed in the employ of a corporation, community chest, fund or foundation organized and operated exclusively for religious, charitable, scientific, literary or educational purposes, or for the prevention of cruelty to children or animals, no part of the net earnings of which inures to the benefit of any private shareholder or individual. Physicians employing only persons embraced within these excepted employments or who are themselves engaged in such excepted services are not required to make application for identification or account numbers."

All others, however, who on November 16 was the employer of one or more persons, subject to the exemptions noted, prior to November 21, must report that fact to the postmaster from

whose post office the physician has obtained his office or business mail. He must also make application what is known as "Form SS-4," for the assignment of a number which is an "identification number" which is used for identification in the process of collecting the taxes under the Social Security Act for the benefit of the old age benefit provisions. If physicians who were employers on that date failed to comply with this requirement THEY MUST COMMUNICATE IMMEDIATELY WITH THEIR POSTMASTERS.

Any physician becoming an employer subsequent to November 16, must also apply for an identification number within thirty days after the relationship of employer and employee is established. Such application must be made to the field office of the Social Security Board in the area in which the office or business establishment of the physician is located, or if there is no such office to the Social Security Board, at Washington, D. C.

Persons who were employees of such physicians on November 24, are required to obtain what is called "account numbers" by filing application on Form SS-5 on or before December 5 with the local postmaster, and likewise persons becoming employees after November 24 must also file application for numbers within 30 days after the beginning of their employment.

While physicians generally are considered, under the regulations, as independent contractors and consequently not subject to the taxes imposed on employees, if physicians are employed on a full time or part time salary basis they are apparently to be considered as employees. Such physicians must file application for "account numbers" on form SS-5. As employees they are subject to the tax on employees, and their employers must pay the employer's tax with respect to them.

Employers' and employees' taxes will be collected by means of monthly returns to be filed by employers, who not only must pay to the local collector of internal revenue the tax imposed on employers but also must deduct from the wages of their employees the employee's tax and transmit that also to the collector. The first returns will be due not later than March 1, 1937, covering wages paid for services rendered during the month of January.

CINEMA-TITIS IS ALARMING JUVENILE AILMENT AND SO DEMANDS SCIENTIFIC SOLUTION

Indiscriminate admission of young children to sensational cinemas takes entirely too heavy a toll of youth and inhibits sane maturity.

Increased emotional disturbance and permanent nervous disorganization from cinematic over-indulgence are indicated through tests made by the hypnograph and by the psychogalvanometer. Experiments with the hypnograph show that even under ideal conditions the sleep of the most normal child is made up of a series of *quiet* periods alternating with a series of *restless* periods. Only one child in a hundred was found to sleep for a full hour without moving, while the average "quiet" period was less than eleven minutes.

Fifteen per cent. of the sleeping time of children is spent in bodily movements. Sleep is quietest during the first part of the night. From July to December is the greatest growth period of children and it is also the period when juvenile sleep is disturbed most by restlessness. The onset of illness is reflected in one or two antecedent nights of restlessness.

Applying the same instrument to children who had attended night cinemas it was noted that this group displayed either greatly increased restlessness or what was plainly the fatigue phenomena of a too deep sleep. The boys showed an average increase in restlessness of 26 per cent. and the girls of 14 per cent. Screaming and other symptoms characteristic of hysteria also followed stirring cinemas.

The psychogalvanometer revealed that children became twice as excited as did adults and that the average picture was a powerful emotional experience for the average child. In one instance the pulse rate was quickened to 192 from the normal 80, and an acceleration to 120 and 140 was common. Many deep, highly injurious and lasting impressions are the consequence of a child's realistic attitude to those cinemas classified as "fright-and-horror-pictures," and to the juvenile inability to make the so-called "adult discount."

That this is a genuine menace not only to children but to their emotional future may be realized to some extent when it is considered

that a recent group report upon children and the cinema, in which the findings were well authenticated some of the statistics were that:

Twenty-eight million American children attend the movies every week.

Eleven million of these children are under eleven years of age.

The average motion picture is heavily freighted with sex, love and crime. (An analysis of 1,500 films.)

Little passes over the head of the average child—he remembers seventy per cent. as much of what he sees as does the adult.

The motion picture is capable of powerfully shaping the attitude of youth toward many questions—race prejudice, capital punishment, gambling, etc.

The conduct patterns of many children are moulded by the movie through imitation, a well-known characteristic of childhood. Wide sampling among youthful criminals and delinquent girls shows that many of their ideas and methods are traceable to motion picture influence.

The deterrent and correctional effect of the better type of picture is slight and short lived.

When the movie-going child is contrasted with the non-movie-going child, the latter is found to have a better school record both as to conduct and scholarship, to be emotionally more stable and more popular with other children.

The situation calls for corrective measures both educative and legislative. Movie theaters are large, comfortable, warm in winter, cool in summer and from the standpoint of the busy city mother a safer place for the child than the ball-game in the streets or the dubious delights of the "gang." The picture that educates the child, the film that enlightens as to historical, geographical, chemical, or any other scientific or literary fact is to be desired inasmuch as such films are aids to development as only visual education can be.

Gang pictures, sex pictures or even clean super-thrillers have no place in the juvenile mental program. Just what the solution may be is puzzling.

For those parents whose sole recreation is a movie at night and nothing to do with the child but drag it along, out of simple justice to the child, and perhaps as a desirable eventuality the alert and conscientious cinema showman will devise an anodynistic program for the unfortunate out-of-bed youngster to run concurrent with parental pleasure over thrills as the celluloid shows them. At any rate children should be kept away from thrillers for the good of the race.

INCREASING PATERNALISM

Our grand old U.S.A. has been guilty of many paternalisms since 1914.

Among them, for remembrance's sake, let there be listed: A law was passed in 1915 with the idea of decreasing, or of eliminating "orphans of widowed or abandoned mothers." This law provided a payment of $7.50 per month, or two and one-half cents per day for each such child. How did it work?

In 1915, orphans of that ilk totaled 1,500. In 1916 this same orphan crop had increased to 3,600, while in 1930 not only had the orphan crop increased to 36,000 but the amount per orphan had jumped to $9.50, or something more than three cents per day. Statistics show that this was a much greater, in fact an appallingly greater per capita increase in orphans than in population of the entire commonwealth. To the mathematical eye this intimates rather a large gentleman in the woodpile—somewhere!

Add, too, "Workmen's Compensation Insurance." Contrary verdict of leading insurance companies tried and tested in the routine of the nation's industry and finance is unanimous.

Industrial accidents instead of diminishing to the disappearing point have increased in exactly inverse ratio, and already to the tune of several hundred per cent. In Chicago recently it has been deemed necessary to investigate collusive collection of industrial accident damages. Graft has been rampant in only too many states and too many accidents.

The master mistake at individual housecleaning by law was the monumentally misguided 19th Amendment. Prohibition paternalism has the wreckage of at least one generation hung on its belt, while the diversion of millions of legitimate revenue to industry is as incalculable loss as the number of homes broken up through fanatical punishments to prohibition law violators. "Life for a Pint" it will be recalled was a Michigan slogan; and persons, men and women, were sent to prison (and for all this editor knows may be

there yet) because in their possession was found a pint of alcoholic liquor. As a rule the "pint-lifers" were the poor. Rich and insolent bootleggers could only be convicted on "income tax charges," so powerful was their graft in politics from the bottom almost up to the very top.

Yet with this remarkable record of crackpot paternalisms, the U. S. A. is going to try and be ultra paternal again by socializing medicine, breaking the news gently to the taxpayer by "social security schemes" "Health insurance" and similiar bilge.

If any of these *AAAAAAA theorists* had ever read much history or owned the ability to digest what they read, they would realize that not since the days of mythology down to these hours of communistic triumphs of far too great an extent, has it ever been possible to standardize or to stabilize time and its changes, the tides or the winds. Such is the immutability of life and its ways—the changes of time are the only certainties. All other ingredients in life lack (death alone excepted and even there the value is equivocal) *any positive actuarial basis.* To walk the air, man needs at least a tight-rope or slack wire. Neither is offered in any of the schemes and schisms set forth by proponents for social security, health insurance or state medicine. And again the medical profession is warned in the words of Vergil,

"Non tali auxilio nec defensoribus istis, Tempus eget"—"Not such aid nor such defenders does the time require."

WE MUST WORK IN SEASON AND OUT OF SEASON AGAINST INSIDIOUS PROPAGANDA

Although few of the socialistic-paternalistic schemes for controlling and supervising the activities of the medical profession have as yet been permanently established or enacted into law by the National Government or by many of the various State Legislatures, the danger of such legislation in the near future has reached an alarming state. If we desire to preserve the traditions and principles of our noble profession and prevent its practitioners from being made mere cogs in a great political machine we must work in season and out of season against the insidious propaganda of the amateur and professional uplifters, who, in order to obtain more power—and profit—are seeking to standardize and socialize the medical profession, not only to its injury but also to the injury of the public at large.

Inasmuch as the medical profession of the United States is practically unanimous against these iniquitous schemes, it seems necessary to "scotch the evils" at their inception just as we "scotched" the health insurance proposition at the New Orleans meeting in 1920 when the House of Delegates of the American Medical Association was unanimously on the right side, notwithstanding the strenuous efforts of the propagandists for five years "to put it over on us."

THE PARAMOUNT BUSINESS OF MEDICINE

The message sent to the members of the Wisconsin State Medical Society by the president, Ralph M. Carter, is worthy of quotation; for in it Dr. Carter says in part:

"The task now confronting the members of the medical profession is to prove themselves to the American people and to demonstrate to the people that no scheme of state medicine can take the place of private practice. To do this we must re-affirm certain ideals and prove to the people that we are living up to them. The chief and most important of these ideals is, that the health and well-being of the public is the paramount business of medicine. We must make this our chief concern."

WASTE

At various times various people have estimated that the U. S. loses annually these sums from these causes:

Crime: $12,000,000,000.
The Common Cold: $2,000,000,000.
Automobile accidents: $1,600,000,000.
Occupational accidents: $610,000,000.
Accidents in the Home: $590,000,000.
Public accidents: $450,000,000.
Fire: $248,763,856.
Hessian fly: $150,000,000.
Cattle ticks: $100,000,000.
Coddling moth: $20,000,000.
Ox warble (a pest): $10,000,000.
Prairie dogs in Nebraska: $80,000.

Last week Professor Wilfred William Robbins of University of California's College of Agriculture announced that weeds cost the U. S. $3,000,000,000 a year. With weed waste included, the annual U. S. wastage appears to be equal to nearly one half of the national income, which was $53,000,000,000 last year.

MEDICAL ECONOMICS

Frank L. Brown, M. D.
E. P. Coleman, M. D.
John R. Neal, M. D.
Ralph Peairs, M. D.
P. H. Kreuscher, M. D.
C. E. Wilkinson, M. D.

Edited by the Committee on Medical Economics
of the
Illinois State Medical Society
E. S. Hamilton, M. D., Chairman
Kankakee, Illinois

H. M. Camp, M. D.
R. L. Green, M. D.
I. H. Neece
R. K. Packard, M. D.
C. B. Reed, M. D.
C. S. Skaggs, M. D.

Address all letters and commnications to the Chairman.

The result of the recent presidential election makes a definite decision by the medical profession in regard to their program of education on medical subjects very important. There is no doubt that the high standard of medical service rendered in this country, in comparison with the rest of the world, must form the basis and foundation of our arguments and talks on this subject. If we can convince the general public and the governmental authorities that the medical service rendered in the United States is superior to that in any other part of the world, we have made a great advance in our struggle to maintain the present order. All who have studied the facts know that the above is indisputable. So, the problem becomes one of education and publicity. This cannot be carried on by any one man or group of men in a state. The entire medical profession must be informed thereon and must be willing and able to make talks to any and all groups from whom the invitation can be obtained to present the fact on the subject.

For the past two years a small group of physicians of the Illinois State Medical Society have been talking to medical and lay groups on this subject. Their welcome has been most hearty for the public are always interested in the subject of health. It is the consensus of opinion among the men who have done this work that the response from the lay groups addressed has been most satisfactory and that definite progress is being made in the campaign of publicity. However, as yet the surface has not been scratched and there is a crying need for more speakers. well informed and willing to give a little time to furthering this progress. Through various sources the word has come to organized medicine that already this elemental campaign is bearing fruit and having an influence on those in high governmental authority, who after all, want to give the people what they, the people, really want, provided those in power know what this is and there is no organized minority which can wield sufficient influence to put over their own selfish desires. Facts and figures will be gladly furnished any member of the Illinois State Medical Society who desires to prepare to help in making these talks. Just write to Miss McArthur, Secretary of the Educational Committee of the Society, at 30 North Michigan Avenue in Chicago, telling her what you wish and she will see that you receive the same.

Your Committee on Medical Economics is continuing its study of the problems of economic interest to the physicians of Illinois. So many are the new problems arising and so little definite information is obtainable when they make their appearance, that this study is difficult. As a result the committee has adopted the plan of assigning to each member thereof a definite subject for investigation and study, with instructions to report back at the next meeting of the committee. This plan is working quite nicely, and at the next meeting of the Council in Peoria, early in January, considerable definite information should be ready to report. We will include in this column copies of those reports made which are of general interest as rapidly as they come in, so that the rank and file of the profession may know exactly what is going on.

At a recent meeting of the Committee, the subject of publicity was discussed at length. All present were opposed to publicity by individuals, particularly as it affects special cases. They all agreed that the medical profession was overlooking a great opportunity by not getting newspaper publicity for the talks made by members to lay groups. The newspapers in most communities have been more than willing to cooperate with the speakers in reporting the meetings and have asked for copies of the speeches. In many cases these were not available while in others the speaker was undecided as to whether he should do so. This subject will be further discussed at the next council meeting and if the

consensus of opinion is that it is ethical to do so, some plan of obtaining newspaper publicity will be worked out with the assistance of the Educational Committee.

The problem of syphilis has received great publicity in the past few months as a result of the interest of Dr. Parran, head of the U. S. Public Health Service. Dr. I. H. Neece of Decatur has made a special study of the subject and reported to the Committee at the last meeting and his report will be presented to the Council at the next meeting. A copy of his report will be included in this column this month. We hope that you will all have time to read the same, due to the great interest on the part of the laity resulting from the publicity given the talks of Dr. Parran as well as the articles which have appeared in large metropolitan newspapers. This appears to be another place where the medical profession can both aid and be aided by a great campaign of publicity now well under way. Surely the part organized medicine has played in the war upon syphilis is not to be apologized for nor to be concealed. If we can be of further assistance in bringing this disease under control we should be more than willing to receive some of the credit for both past and future performance.

The new Illinois Occupational Disease Act is now in force, as of October 1, 1936. This is of great interest to industry, labor and the medical profession. Dr. Phil Kreuscher, Chairman of the Council, was greatly interested in the Act, prior to the enactment by the Legislature. Now that it is in force, he has consented to write an article explaining the relation of the medical profession to the act and how practicing physicians will be affected by it. This article will also be included in the column this month. It should be read by every man who does any industrial work at all, and should be of interest to every man in the medical profession.

Reports from several sources indicate that the subject of Group Hospitalization continues to be a lively one. According to a recent checkup, organization plans are under way only in Chicago and Peoria in Illinois. Apparently, there continues to be a great difference of opinion in Chicago and the decision as to the position the Chicago Medical Society is to play has yet to be decided. We should all watch the success or failure of these plans wherever they are in operation, so that when the time comes when they are up for discussion in our communities, we the medical profession will be able to lead in making the final decision as to its practicability in our individual community and not allow some high pressure salesman, with a personal selfish interest stampedes the public into some scheme which is not satisfactory. Only an alert, fully informed medical profession will be able to present the facts to the public when the time comes. If the plan is satisfactory, it will spread. It must remain under the supervision of the medical profession and not be organized for the profit of any one or any group of individuals. It would probably be wise for organized medicine to withhold endorsement or disapproval of any plan until the subject can be studied longer. A special committee under the leadership of Dr. C. E. Wilkinson of Danville is and has been studying the subject intensively the past two years. They will continue to report to the Council and the medical profession from time to time as they get definite information and arrive at definite conclusions as to the practicability and ethics of the plan.

E. S. HAMILTON,
Chairman of Committee on Medical Economics.

RESOLUTION ON SYPHILIS

WHEREAS, The plague of syphilis has been kept alive by secrecy and that public knowledge of its ravages is needed to conquer it; and

WHEREAS, Statistics indicate that one-tenth of the population of the United States has, or has had syphilis, and the United States Public Health Service has conservatively reported 518,000 new cases annually, with 683,000 cases constantly under treatment and observation, and that in the State of Illinois the Department of Public Health reported in 1934, 17,428 cases; 1935, 15,628, and up to September 1, 1936, 11,884 new cases, and

WHEREAS, It is estimated that 50% of all cases of syphilis are innocently acquired and that if proper treatment be administered, 90% of all primary infections can be cured; 60% in the secondary stage can be cured; 45% of all latent cases can be relieved and rendered non-infectious, and the economic loss appreciably reduced in one decade, and

WHEREAS, Civilization has risen as ignorance

has been dispelled, and disease has been conquered, as knowledge of it has spread; health standards have improved in proportion to the number of people who have been taught the desirable attributes of health, and

WHEREAS, Publicity is the most potent means available for the widespread distribution of pertinent information and the dissemination of news;

Therefore, Be It Resolved, That the information and facts about syphilis should be thoroughly publicized, as to its social, physical and economic consequences, through the press, radio, and public address, so the public may become syphilis conscious, and be it further

Resolved, That the Committee on Medical Economics thoroughly acquaint themselves with the programs of Dr. Parran, Surgeon General of the United States Public Health Service, and of Dr. Frank Jirka; the Director of the State Department of Public Health, and submit a detailed report to the Council at the next regular meeting in January.

Be It Further Resolved, That a copy of these resolutions be presented to Drs. Parran and Jirka, and that the facilities of the ILLINOIS MEDICAL JOURNAL be made available for such information as the National and State Departments desire for the discussion of the plans of the set-up under the Social Security Act, and that a steering Committee from the Council be appointed to aid and advise with the Health Departments in launching a campaign of publicity against syphilis.

Respectfully submitted,

I. H. NEECE, M. D.,

(Chairman of the Committee.)

NEW ILLINOIS OCCUPATIONAL DISEASES ACT

On March 16, 1936, Governor Horner signed a new Occupational Diseases Act for Illinois. which was passed by the Third Special Session of the Legislature. This Act became effective October 1, 1936.

Prior to the passage of this new Act there was no remedy in Illinois for a man who became disabled due to an occupational disease unless the occupational disease was caused by some poisonous chemical, mineral or other poisonous substances. All non-poisonous dust diseases such as "silicosis" or "asbestosis" were not compensated for, even if the employer was grossly negligent in not using the proper preventive measures.

The new Occupational Diseases Act, by Section III, provides that where an employee in this state sustains an injury to his health or death by reason of a disease contracted in the course of his employment, and proximately caused by the negligence of his employer, that he shall have a right of action against his employer for unlimited damages, except in cases of death not to exceed $10,000.

The so-called common law defenses are abolished. That is to say, the employer can not say that the disease which the employee received through the negligence of his employer was caused by a risk which the employee assumed in his employment, or that it was caused by a fellow servant, or that the disease was caused in whole or in part by the contributary negligence of the employee, where such contributory negligence was not wilful.

Any employer to whom this Act applies, and it applies to every employer of this state, except the farmer and private householder, may escape the stringent provisions of Section III by electing to provide and pay compensation in accordance with the compensation provisions of the new Act. If the employer so elects to provide and pay compensation, then the case is tried before the Industrial Commission and the question of whose fault it was that caused the occupational disease does not enter into the picture. If the employer elects, the Act defines an occupational disease as meaning a disease arising out of and in the course of the employment. Ordinary diseases of life to which the general public is exposed outside of employment are not compensable, except when the disease follows as an incident of an occupational disease as defined in the Act.

The employee, in case of disablement from an occupational disease, is entitled to all necessary medical, surgical and hospital treatment which will reasonably effect a cure, except in cases of "silicosis" or "asbestosis," because these two diseases are recognized as incurable. The liability of the employer is limited to a period not to exceed six months in this case.

Practically 23 of the 34 sections which compose the new Occupational Diseases Act were taken from the Workmen's Compensation Act, which takes care of accidental injuries. Under the new Act it is the duty of the employee to

notify his employer as soon as practical after disablement from an occupational disease. A demand for compensation must be made within six months after the occurrence of disability from occupational disease, and an application for compensation must be filed with the Industrial Commission within one year after the date of the disablement, or within one year after the date of the payment of the last compensation, if any has been paid.

The employer who is liable under the provisions of this Act is the one that last exposes the employee to the hazards of an occupational disease, and an employee is conclusively deemed to have been exposed to the hazards of an occupational disease when for any length of time, however short, he is employed in an occupation or process in which the hazard of the disease exists. In case of "silicosis" or "asbestosis" the only employer liable is the last employer in whose empoyment the employee was last employed during a period of sixty or more days after the effective date of this Act. The purpose of that last provision was to make certain which employer was liable. It may easily be that an employee may not have been exposed long enough in an employment to receive the full effect of the disease, but to make certain whom he shall sue it was deemed best to make the last one that exposed him to the hazards of the occupational disease liable.

Like the Workmen's Compensation Act, it is the duty of the employer to furnish the necessary medical treatment, but the employee may chose his own doctor at his own expense. The employer has a right to reasonable examinations after disablement to determine the condition of the man and to prepare a defense in case he is sued under the compensation features of this Act.

Whenever, after the death of an employee, any party in interest files an application for adjustment of claim under this Act, and it appears that an autopsy may disclose material evidence as to whether or not such death was due to the inhalation of silica or asbestos dust, the Industrial Commission, upon petition of either party, may order an autopsy at the expense of the party requesting same, and if such autopsy is so ordered, the commission shall designate a competent pathologist to perform the same, and shall give the parties in interest such reasonable notice of the time and place thereof as will afford a reasonable opportunity to witness such autopsy in person or by a representative.

It shall be the duty of such pathologist to perform such autopsy as, in his best judgment, is required to ascertain the cause of death. Such pathologist shall make a complete written report of all his findings to the Industrial Commission (including laboratory results described as such, if any). The said report of the pathologist shall contain his findings on post-mortem examination and said report shall not contain any conclusion of the said pathologist based upon the findings so reported.

By that it is meant that the pathologist is to give only his findings, and not conclude that the cause of death was, for instance, arsenical poisoning. In other words, he may give all his findings, which may go to make up his conclusion of arsenical poisoning, but his conclusion as to the cause of death must not be contained in the report.

The report of the pathologist is filed with the Industrial Commission, and becomes a public record. Either party may produce any evidence to rebut any part of the report.

If an autopsy is performed at any time without the express or implied consent of an interested party, when the opposing party is known or reasonably ascertainable, and without the said interested party being given reasonable notice and reasonable opportunity of witnessing the same, all evidence obtained by such autopsy shall be barred upon objection at any hearing. This does not apply, however, to autopsies by a coroner's physician in the discharge of his official duties.

Under the compensation features of the new Act, a man is paid for disability which is defined as the event of being disabled from earning full wages at the work in which the employee was engaged when last exposed to the hazards of the occupational disease by the employer from whom he claims compensation or equal wages in other suitable employment.

No compensation is payable on account of an occupational disease unless disability as defined in the Act occurs within one year after the last day of the last exposure to the hazards of the disease, except in case of occupational diseases caused by the inhalation of silica or asbestos dust and, in such cases, within three years after

the last day of the last exposure to the hazards of such disease.

During the regular 1935 session of the Legislature, attempts were made to pass various acts relating to occupational diseases and they failed. A companion measure, known as the Health and Safety Act, gives the Industrial Commission, after a hearing, the right to make reasonable rules which will have the force and effect of law for the prevention of personal injuries and diseases. In carrying out the details of this Act, consultation and advice of physicians will be necessary and essential. The medical provision will play an important part in carrying out the duties imposed by the new laws. The main object of these laws are, first, prevention, second, adequate care, and third, reasonable compensation.

P. H. KREUSCHER, *M. D.*,
Chairman of the Council, Illinois State Medical Socie

1937 ANNUAL MEETING, PEORIA, ILLINOIS, MAY 18, 19, 20, 1937

The 1937 Annual Meeting of the Illinois State Medical Society will be held in Peoria on May 18, 19, 20, 1937. All meetings will be held at the Pere Marquette Hotel, and all exhibits will be placed in this same building.

The Peoria Medical Society, acting as the official host for the meeting, has selected Dr. E. C. Kelly of Peoria as general chairman of the Committee on Arrangements, and the list of committees has been delivered for publication.

1937 ANNUAL MEETING, PEORIA, ILLINOIS, MAY 18, 19, 20, 1937

COMMITTEES

GENERAL CHAIRMAN

E. C. Kelly

RECEPTION COMMITTEE

Hugh Cooper, *Chairman*
William Cutter, *Vice-Chairman*
C. U. Collins
R. A. Hanna
E. Z. Levitin
Franklin S. Davis
E. E. Barbour
William Blender
John Sloan
W. A. Borin
A. L. Corcoran
A. J. Foerter
F. G. Hopkins
A. A. Knapp
E. A. Garrett
H. L. Pintler
O. J. Roskoten
H. M. Sedgwick
J. H. Ulrich
G. U. Washburn
H. L. Williams
W. A. Hinckle
G. C. Lewis
George Zeller

INFORMATION

Clarence Margaret, *Chairman*
Elmer Seaburg, *Vice-Chairman*
Arthur Baker
R. I. Clary
J. P. Sparks
Emmett Wall

MEETING PLACE

Arthur Sprenger, *Chairman*
William Roche, *Vice-Chairman*
H. W. Hawkins
J. H. McCuskey
Victor Williams

MEDICINE

George Parker, *Chairman*
James Sours, *Vice-Chairman*
Clarence Fischer
Harry Durkin
Fred Meixner
Ray King
B. H. Trewyn
Walter Baer
William Cutter

SURGERY

R. M. Sutton, *Chairman*
Don Burroughs, *Vice-Chairman*
Wilbur Bowen
David Fey
J. E. Bellas
William Roche
E. C. Burhans
J. H. Bacon
John Sloan

EYE, EAR, NOSE & THROAT

Jos. Duane, *Chairman*
Wright C. Williams, *Vice-Chairman*
A. J. Blickenstaff
E. H. Bradley
C. H. Brobst
L. M. Coffey
T. W. Floyd
F. F. Haas
P. R. McGrath
C. D. Sneller
C. O. Thomas
C. Turner
C. Welton
Walter Wyatt
C. V. Ward

SECRETARIES' CONFERENCE

Clarence Magaret, *Chairman*

PEDIATRICS

Orville Barbour, *Chairman*
John Vonachen, *Vice-Chairman*
Fred Maurer
A. E. Cohen
Carl Sibilsky

PUBLICITY

C. G. Farnum, *Chairman*
George Michell, *Vice-Chairman*
L. Rutherford
G. M. Frye
B. Heymann

TRANSPORTATION

Clifford Strause, *Chairman*
E. P. Burt, *Vice-Chairman*
George Borin
P. F. James
J. E. Meloy

PUBLIC HEALTH & HYGIENE

Sumner Miller, *Chairman*
E. S. Gillespie, *Vice-Chairman*
Joel Eastman
S. Horwitz
E. L. Davis
Fred Stiers

RADIOLOGY

H. B. Magee, *Chairman*
Fred Decker, *Vice-Chairman*
J. Foley
P. B. Goodwin
H. C. Morris
P. B. Weins

INDUSTRIAL SURGERY

Harold Vonachen, *Chairman*

H. M. Wilson, *Vice-Chairman*
Harry J. Ireland
Milo Easton
David Fey
Hugh Cooper

OBSTETRICS & GYNECOLOGY

William Michael, *Chairman*
William Cooley, *Vice-Chairman*
E. P. Burt
Bryant Trewyn
C. J. Heiberger

ALUMNI & FRATERNITY DINNER

W. D. Madison, *Chairman*
Oliver Rian, *Vice-Chairman*
Glen Allen
W. Weinkauff

GOLF

William Major, *Chairman*
Harold Diller, *Vice-Chairman*
J. F. Duane
C. G. Farnum
C. Turner
Harry A. Durkin
Fred Stuttle

HOTEL

W. A. Malcolm, *Chairman*
L. V. Boynton, *Vice-Chairman*
J. B. Jennings
Walter King
Oliver Rian

STAG DINNER

J. T. Jenkins, *Chairman*
C. V. Ward, *Vice-Chairman*
Patrick Cusick
B. Adelsberger
John Sloan
A. D. Phillips

LADY PHYSICIAN RECEPTION

M. B. Meloy, *Chairman*
Mildred Merkle, *Vice-Chairman*
Ethel Cooper
Helen Coyle
Lucia H. Lucy
M. D. Robertson
E. H. Stone

COMMERCIAL EXHIBITS

George Seward, *Chairman*
E. C. Burhans, *Vice-Chairman*
M. E. Aaberg
George Cohen
William Blender
J. R. Bierly

FINANCE

Leslie Rutherford, *Chairman*
Allan Foster, *Vice-Chairman*
L. A. Burhans
F. G. Hopkins
George Washburn
Clarence Magaret

PRESIDENT'S DINNER

W. H. Holbrock, *Chairman*
J. E. McCorvie, *Vice-Chairman*
F. E. Fielding
J. H. Mathis
James Walsh

VETERAN'S DINNER

E. E. Nystrom, *Chairman*
L. C. Ives, *Vice-Chairman*
C. D. Sneller
G. H. Stacy
F. F. Hass
Hugh Cooper
Arthur Sprenger
Milo Easton
Sumner Miller
E. A. Garrett

REGISTRATION

K. N. Petri, *Chairman*
James Walsh, *Vice-Chairman*
W. B. Eicher
William Roche
E. L. Aaberg

ATTENDANCE

Milo Easton, *Chairman*
C. Heiberger, *Vice-Chairman*
Clarence Fischer
Harry L. Berman
C. G. Blake
R. C. Bradley
H. B. Knowles
E. A. Garrett
A. G. Ekonomou
W. A. Gott
P. F. Jones
Clarence Magaret
A. P. Kannapel
D. D. Kirby
John Sloan
W. T. Marrs
A. S. Plummer
J. C. Robert
F. L. Stiers
S. A. Smith
A. H. Clark
Chas. Sneller
Harry Durkin
C. G. Farnum
W. Cutter
E. Z. Levitin
Hugh Cooper
Arthur Sprenger
R. A. Hanna
C. U. Collins
George W. Parker
L. Rutherford
T. C. Coggeshall
R. L. Eddington
T. S. Egan
L. E. Monroe
E. Ross
Walter Baer
E. C. Burhans

SCIENTIFIC EXHIBITS

M. G. Bohrod, *Chairman*
J. E. Bellas, *Vice-Chairman*
F. E. Hammitt
E. E. Howard
Max Pollock

WOMAN'S AUXILIARY

Mrs. Milo Easton, *Chairman*
Mrs. J. E. Bellas, Registration
Mrs. William Kinckle, President's Luncheon
Mrs. E. Coleman
Miss Mary Knapp, Transportation
Mrs. Hugh Cooper
Mrs. J. Jenkins
Mrs. James Walsh, Hygeia
Mrs. F. Meixner, Bridge Dinner
Mrs. E. C. Kelly

ENTERTAINMENT (Tea)

Mrs. J. Vonachen, *Chairman*
Mrs. H. Durkin

GOLF

Mrs. Hugh Cooper, *Chairman*
Mrs. P. Jenkins

Correspondence

THE OPERATION AND FUNCTION OF THE ILLINOIS RESEARCH AND EDUCATIONAL HOSPITAL

To the Editor:

From time to time requests for information concerning the operation and function of the *Illinois Research and Educational Hospital* come to us, and it was thought that a letter published *in the Journal would aid the Physicians of the* State in becoming better acquainted with this Institution.

The Research and Educational Hospital is a teaching and research Institution. It is operated jointly by the Department of Public Welfare and

the University of Illinois through Legislative Act and Articles of Agreement, for the care of indigent patients only, who are residents of the State of Illinois. The Hospital is staffed by members of the Faculty of the College of Medicine of the University of Illinois. Being an educational Institution patients are accepted in the Hospital primarily on the basis of their value for teaching and study.

We are naturally anxious to cooperate with, and be of assistance to the Doctors of the State, and not in competition with them. The number of charity patients, both in Cook County and down State, is far greater than the Institution can care for. We have a Hospital of 365 beds, and in our Dispensary we take care of approximately 400 patients per day; yet we are turning away from 200 to 300 patients a week, that we are unable to care for.

On entering the Dispensary patients are required to fill out a social service sheet, approved by the Council of Social Agencies, and everything is done to limit our patients to those deserving charity. The survey made a year ago under the auspices of the Chicago Medical Society revealed that a relatively low percentage of persons attending the Clinic were able to pay. If patients are able to pay we encourage them to go to their neighborhood Doctor, and in recent months a large number have been so referred.

For those patients from outside Cook County, we insist on a letter from a duly licensed Physician from their Community, requesting medical service for the patient and stating their impression of the case; also the patient's inability to pay. Sometimes the patient is sent to us for assistance in diagnosis, to be returned to the local Doctor for the treatment suggested. When a down state patient is discharged from the Hospital we write the local Doctor, referring to the pathological conditions found and to the treatment administered while here, and, if requested, suggestions for future care.

Physicians are welcome at any time to visit the Hospital and to see for themselves the work we are *doing. We are always glad to receive suggestions as to how we can be of greater service to them.*

Sincerely yours,

MAJOR H. WORTHINGTON,
Managing Officer.
DAVID J. DAVIS,
Dean, College of Medicine.

STATE MEDICAL SOCIETY, EYE, EAR, NOSE AND THROAT SECTION

The program of the Eye, Ear, Nose and Throat Section of the Illinois State Medical Society meeting to be held at the Pere Marquette Hotel, Peoria, May 18, 19, 20, 1937, is now being made up.

Any member of the Section desiring a place on the program is requested to communicate with the undersigned and give title and a synopsis of the paper, as the number of places is limited it is suggested that prompt action is desirable.

The papers will be limited to twenty minutes and the subsequent discussion to three minutes each.

Chairman of Section,
JOHN A. CAVANAUGH, M. D.,
30 North Michigan Blvd.
Chicago, Ill.
C. B. VOIGT, M. D.,
1702 Broadway, Mattoon, Ill.
Secretary.

SOCIETY PROCEEDINGS

TRI-COUNTY MEDICAL SOCIETY

One of the largest and best meetings of Tri-County Medical Society was held in Kewanee on October 30th. The meeting attracted more than 150 persons, including visitors from Iowa and officers of the Illinois State Medical Society.

The papers, all of particular interest to the general practitioner, were presented by Doctors Paul B. Magnuson who discussed "My Ideas About the Treatment of Arthritis, Both Medical and Surgical"; Charles A. Elliott, "The Management of Cardio-Vascular Disease," and Harry M. Richter on "Gastroduodenal Ulcer and Its Surgical Treatment."

The members of Henry County Medical Society were hosts for the meeting and P. J. McDermott arranged the program with the assistance of the Scientific Service Committee of the Illinois State Medical Society.

EDUCATIONAL COMMITTEE

November, 1936

SPEAKERS' BUREAU:

45—Popular health talks were presented by members of the Illinois State Medical Society before representative lay organizations.

Comments received from program chairmen of these groups show service is filling need. "Very well presented and very well received. Best health talk for lay group ever heard."

"Talk was very good, excellent in fact, and very much appreciated by our club."

"A most interesting and inspiring talk."

"Very interesting. He seemed able to put his finger

right on the sore spots in child training that mothers often overlook."

"Talk was very instructive, interesting and fully appreciated."

The Educational Committee has been invited to sponsor a panel discussion on medicine and its opportunities for a selected group of fifty young men from the North Park College in connection with a Vocational Guidance project of the Chicago Association of Commerce and the Chicago Rotary Club.

SCIENTIFIC SERVICE:

19—Scientific programs were arranged for medical societies.

The Committee has an excellent list of speakers from which to draw and can fill appointments in any part of the state if sufficient notice is given. The list includes a number of doctors from St. Louis who are willing to address groups in the southern part of the state.

RADIO:

22—Popular talks and programs were given over Chicago stations. The Committee has tried some round table discussions which seem to create interest and also some questions and answers programs. This type of program will be introduced occasionally to vary the straight talks given by members of the Chicago Medical Society.

Copies of these radio talks are available to other societies wishing to use them over local stations. They are also available for program material for mothers study groups or other lay organizations.

PRESS SERVICE:

20—Health articles to newspapers using monthly service.

85—Health articles to Chicago and Cook County newspapers.

341—Health articles to down state newspapers.

Releases to newspapers about medical programs:

27—Lee County.

32—Southern Illinois Medical Association.

45—Bureau County.

13—Chicago Medical Society.

Articles written and approved:

Cold in the Head.

Complications of the Nasal Cold.

Medical Christmas Gifts.

About Pneumonia.

Is Your Child Protected Against Diphtheria?

The Child Who Will Not Eat.

Library service:

192—Health articles to Chicago Public Libraries.

336—Health articles to downstate Public Libraries.

78—Health articles to Home Bureau Advisers.

ASSISTANCE TO COUNTY MEDICAL SOCIETIES:

86—Notices sent for Livingston County.

142—Notices sent for Lee County.

264—Notices sent for Bureau County.

139—Notices sent for Perry County.

57—Letters mimeographed for Woman's Auxiliary.

MISCELLANEOUS:

The Committee was represented in a conference of the Summer Round-Up Chairmen and officers of the Cook County Parent Teacher Associations held at the Stevens Hotel, Chicago.

The Committee was represented at a meeting called by Dr. Johnson, Superintendent of Schools, Chicago, to discuss cooperation and health programs to be carried on in the Chicago schools.

A new display called MEDICAL CHRISTMAS GIFTS FOR CHILDREN is being shown in the window of the Marshall Field & Co. Annex. This exhibit showing the number of children in quarantine during the 1935 Christmas holidays will attract much attention.

JEAN McARTHUR, Secretary.

WOMAN'S AUXILIARY TO ILLINOIS STATE MEDICAL SOCIETY

PROGRAM

A suitable program is different in every locality, consequently the program committee of a Woman's Auxiliary is obliged to select that which is appropriate in their community. The first and important thing to do in a newly organized Auxiliary is for the Program Committee to devote the most of their time during the first meetings in establishing a social acquaintance and a cooperative spirit of service. The same should likewise be revised each year in the older Auxiliary. A united desire upon the part of the membership to carry out the high ideals of the State and National Auxiliary means success.

The American Medical Association is broadcasting over the Red Network "Ladies and Gentlemen: Your Health." This health message with dramatic action and music is brought to you each week in thirty minutes of absorbing drama—Tuesdays at 5:00 P. M. E.S.T. An effort should be made to have as many people in the community as possible listen in, as well as to our State Radio talks over WAAF each Tuesday and Friday at 3:15 P. M. daylight savings time: WJJD each Tuesday and Thursday at 10:00 A. M. daylight savings time: WBBM each Friday, time varies: WGN each Tuesday, time varies.

Each Auxiliary Program Chairman should provide for her information the National Quarterly News Letter sent out by the National Press and Publicity Chairman, Mrs. James P. Simonds, 25 E. Walton Place, Chicago, Ill., at the expense of one dollar.

Hygeia is our principal health magazine and a constant endeavor should be made to increase its circulation, due to the fact that it presents to the public the ideals of organized medicine. Clippings from this magazine on most any health subject are available for borrowing and may be kept ten days. These will be sent from the Bureau of Health and Public Instruction, 535 N. Dearborn St., Chicago, Ill.

The importance of the Public Relations function of the Auxiliary has been emphasized by the members of the Medical Profession as our greatest duty in bringing about understanding between the Profession and

the Public. Some of the organizations which have performed most effective service are Parent Teacher and Pre-school Associations, Federated Women's Clubs, the League of Women Voters, and the Auxiliary to the American Legion, therefore; we should endeavor to assist these and other organizations in the promotion of their health programs by providing speakers and other information materials. The Illinois State Medical Society, 30 N. Michigan Ave., Chicago, Ill., maintains a Speakers' Bureau with suggestive topics for health programs suitable for Men's clubs, Women's clubs, Parent Teacher Associations and other organizations.

Encourage the admiration of the Medical Profession and cooperate with them in their endeavors.

Signed:

MRS. A. B. MIDDLETON, Program Chairman,
603 North Mill St., Pontiac, Ill.

IOWA AND ILLINOIS CENTRAL DISTRICT MEDICAL ASSOCIATION MEETING

Erwin R. Schmidt, M. D., F.A.C.S. professor of surgery at the University of Wisconsin School of Medicine will address the Iowa and Illinois Central District Medical Association December 17 at the Lend-a-Hand Club in Davenport, Iowa on "Anesthesia and Surgery." Louis Barding, M. D., F.A.C.S. of Moline, Illinois, will open the discussion on Dr. Schmidt's paper which will be continued by L. A. Block, M. D., of Davenport, Iowa, and Charles G. Beard, M. D., of Sterling, Illinois.

J. E. Rock, M. D., F.A.C.S., of Davenport, Iowa, will present a case report on Streptococcic Septicaemia Secondary to Osteo-thrombotic Mastoiditis with recovery—Surgery—Transfusions—Pooled Serums. P. A. White, M. D., F.A.C.S. of Davenport, Iowa, will open the discussion on Dr. Rock's case.

Yours truly,

JAMES DUNN, M. D., Secy.,
Iowa and Illinois Central District Medical Association.

SAFE PRACTICES IN INDUSTRIAL USE OF CARBON TETRACHLORIDE

On the basis of animal experiments and on the assumption that monkeys resemble human beings most closely of the animals used and rats next most closely, Henry Field Smyth and Henry F. Smyth, Jr., Philadelphia (Journal A. M. A., Nov. 21, 1936), conclude that 100 parts per million of carbon tetrachloride is a safe working concentration for continuous exposure of workmen during the working day. Concentrations considerably higher than 100 parts per million are safe for short periods of exposure. It is believed that 1,000 parts per million is a safe peak concentration for half an hour a day, with an average of 100 parts per million during the rest of the day; that is, day after day exposure in industry. If the average person recognizes more than a faint odor on entering the workroom, an increase in ventilation is called for. An animal continuously exposed to small amounts of carbon tetrachloride soon regenerates originally damaged liver cells and somewhat later regenerates damaged kidney cells, the regenerated or entirely new cells being more resistant to the vapors than were the original cells. It is concluded from this that in most cases men continuously exposed to small concentrations of carbon tetrachloride increase their resistance rather than increasing their susceptibility. This contrasts strongly with the action of benzene, the safe concentration of which is also set at 100 parts per million, since with that solvent injury may be progressive even after exposure is stopped. Of the total of ninety-six men exposed to carbon tetrachloride in industry, tests showed no one who could be considered seriously or even unmistakably injured by the solvent vapors. Nineteen of these men had worked more than ten years with the solvent, one of them twenty-five years. Although no unmistakable clinical test has been found to determine whether or not a given worker is being injured by carbon tetrachloride before the injury has progressed, it is believed that physical examinations of exposed workers carried out at least twice a year, including determination of the icteric index, blood calcium van den Bergh reaction and visual field mapping and general health, will establish strong probabilities. This program would protect men from more than the first stages of carbon tetrachloride injury, and men detected in these first stages do not have a progressive condition and hence will return completely to normal when their exposure is stopped. In most cases such men will attain added resistance by regeneration of injured cells during a short rest from exposure, although occasional men probably will be found who cannot work with carbon tetrachloride at all.

RELIEF OF LABOR PAINS BY USE OF PARALDEHYDE AND HENZYL ALCOHOL

Howard F. Kane and George B. Roth, Washington, D. C. (Journal A. M. A., Nov. 21, 1936), state that in their technic of particular importance is the thorough cleansing of the lower part of the intestine and rectum with a soapsuds enema followed by irrigations with physiologic solution of sodium chloride until the return is absolutely clear. The dose of paralydehyde is 1.2 cc. to each 10 pounds (4.5 Kg.) of the weight of the woman at the beginning of labor. The dose of benzyl alcohol is always 1.5 cc. To the required amount of paraldehyde is added 1.5 cc. of benzyl alcohol and the mixture is instilled by gravity into the rectum by means of a funnel and a large catheter, which is inserted for a distance of about 4 inches (10 cm.). As the solution disappears it is followed by not more than 30 cc. of physiologic solution of sodium chloride. Paraldehyde-benzyl alcohol is given as soon as the patient complains of pain. The dose, and always the full dose, may be repeated if necessary, one and one-half hours after the first. As labor progresses it will be found that the effect of each successive injection is more lasting, the intervals between repetitions becoming three, four or five hours. If the patient is awake one-half hour after the initial instillation of the rectal solution, one-fourth

grain (0.015 Gm.) of morphine is given subcutaneously. When several doses of the mixture are given, the rectum should be irrigated with physiologic solution of sodium chloride before each alternate instillation. To minimize dehydration, a glass of orange juice or water should be given before each injection of paraldehyde-benzyl alcohol. The patient is usually capable of cooperation to the extent of drinking; otherwise dextrose, intravenously, may be given. Since the patient is not conscious of bladder distention, catheterization is performed every eight hours. The rectal injection should be repeated when the patient begins to awaken, not after she has become restless. Complete relief from the memory of pain was accomplished in 89.7 per cent. of 611 patients, partial relief in 2.6 per cent. and no relief in 7.7 per cent. There were 3.3 per cent. of stillbirths and neonatal deaths; three, or less than 0.5 per cent., were from causes undetermined and may be charged to the method. However, since two such deaths had occurred in the preceding 1,000 cases before any anesthetic had been given, it is possible that the use of paraldehyde and benzyl alcohol may not have been the cause.

LITTLE KNOWN FACTS ABOUT INHERITANCE

Racial coloring is inherited as a "dilution" character. There is no possibility of a "throw-back" to a pure black as popularly supposed.

As the geneticist understands inheritance a bacterially-caused disease is never inherited. Syphilis may infect the embryo or foetus and the child may be born syphilitic. Tuberculosis may infect the child at or immediately after birth. In neither case, however, is this inheritance.

Skin patterns, that is, fingerprints, hair whorls, etc., are inherited probably as "mosaic" patterns.

Blood groups are inherited apparently in a Mendelian or unit-character fashion.

In certain cells, notably those of the salivary glands, the "genes" or carriers of unit characters within the chromosomes have actually been seen.

Geneticists believe that hereditary factors are the most important ones in the cause of cancer. Yet the person does not inherit cancer. He inherits characters which predispose toward tumor formation, toward certain types of tumors and toward tumors arising in certain organs. Without these inherited characters true tumors will never develop. With them a myriad of intrinsic causes will incite to the beginning of tumors, malignant or otherwise.

Body-build, constitution, etc., while inherited, are probably transmitted through the endocrine system.

Form, texture of teeth, jaw-size are all inherited, but not always from the same forebear, which probably accounts for most malocclusions.

RELATION OF SANATORIUM TO TREATMENT OF TUBERCULOSIS

LeRoy S. Peters, Albuquerque, N. M., (*Journal A. M. A.*, Nov. 7, 1936), reasserts that Dr. Trudeau's experiment in the Saranac Lake section started the country on a sanatorium-building period which ultimately placed sanatoriums in practically every state in the Union. In the early days the sanatorium treatment consisted of rest, good food,, fresh air and expert supervision. There was little else to offer the patient. The progress of the disease had to be watched and the prognosis given by what the clinician could gather from physical examination and clinical symptoms alone. The advent of the X-rays and the various laboratory tests for determining activity and the progress in general were yet to come. Sanatoriums can boast results that were never dreamed of by home treatment, because there is nursing supervision and routine is carefully looked after. Education of the tuberculous is best accomplished in the institutions. There is no more comparison between the sanatorium-educated patient and the home patient than there is between the correspondence school pupil and the student of a recognized university. The one is as handicapped in his fight for continued health as the other in his struggle for economic existence.

PRESENT STATUS OF CYSTOMETRY

D. K. Rose, St. Louis (*Journal A. M. A.*, Nov. 7, 1936), believes that the clinical value of cystometry lies chiefly in its identifying the bladder to clinicians as an organ of practical physiologic importance in differentiating all types of neurogenic from physically obstructed bladders, so that treatment may have a better foundation, and in offering bladder function tracings to explain symptoms and determine the results of treatment in dysuric bladders. Clinically, it quite alters the usually accepted view of bladder importance in prostate and bladder surgery, particularly in relation to infection. It differentiates types of dysuria after surgery, childbirth, trauma and disease or injury of the brain or spinal cord. For experimental work undoubtedly a continuous graph is necessary, but for clinical or bedside work methods of interrupted readings, that is, introducing 50 cc. and then taking a reading, are satisfactory. A second tracing at each examination is absolutely necessary, not to verify the first but to note on the second curve the influence of the first filling. In general the normal or irritable bladder is stimulated to decreased capacity and increased pressure, while the low sensation type of neurogenic bladder shows diminished sensation with increased capacity after the distention of the first filling.

SHUFFLE

Professor: "Can you give me an example of a commercial appliance used in ancient times–"

Student: "Yes sir, the loose-leaf system used in the Garden of Eden."—*Siren.*

HEALTH NEWS ITEM

The coming elections prompt the question as to whether plastic surgery hasn't found some way to transfer bone from a stateman's head to his back.

Original Articles

THE ETIOLOGY AND PUBLIC HEALTH ASPECTS OF DEGENERATIVE VASCULAR DISEASE

C. ELLIOTT BELL, M. D.
DECATUR, ILLINOIS

It is a well-established fact that cardiovascular disease is yearly becoming a more important cause of death. An analysis of statistics published by the Illinois Department of Public Health elicits the fact that fatal cardiovascular impairment now occurs twice as frequently as it did two short decades ago.[1] Closer inspection of these statistics reveals several interesting facts. During the past decade the death rate from all forms of heart disease among the people under twenty years of age has decreased by one-half. A less marked, but nevertheless significant decline of mortality from cardiovascular disease is present in the 30 to 35 age group. From the age of 35 there is a gradual ascent until at the age of 54 we discover that the mortality has increased approximately 21%. While the decline in the younger age group offers encouragement, the rapidly increasing losses of those at an age which ought to place them in the very prime of life constitute a challenge to the medical profession.

In this latter group, arteriosclerotic vascular disease predominates. It is generally recognized that arteriosclerosis is the most important, most common and the most abstruse of all vascular lesions. Not only is the etiology obscure, but the very nature of the condition is undecided. One reason why the discussions in the literature are so confusing is that a number of lesions are included under the name of arteriosclerosis, so that now one, now another is being referred to.

The problem may be somewhat elucidated by a consideration of the lesions which characteristically affect the various types of arteries. Thus it has been demonstrated that arteriosclerosis is typically found in the larger vessels which constitute the so-called elastic group of arteries. Likewise, it has been shown that Mönckeberg's sclerosis is found characteristically in the medium-sized arteries which compose the so-called muscular group, while diffuse hyperplastic sclerosis is characteristic of those smaller vessels generally known as arterioles.

Atherosclerosis: Atherosclerosis is found most frequently in the aorta and its immediate branches such as the carotids, subclavians, and the iliacs, although it may occur in smaller arteries. As a group, their most prominent feature is the great abundance of elastic fibers in the middle coat. The essential lesion is the atheromatous plaque, which represents a deposit of lipoid material in the depths of the intima together with the resulting tissue reaction.

Almost everything has been blamed for this condition. Because of their very multiplicity, it is impossible to review all of the suspected causes. It is regarded as a disease of old age, a consequence of that vague thing called "stress and strain of life." However, in many old people there is no trace of atherosclerosis, and marked atherosclerosis may occur in the very young. Yet as Sir Clifford Allbut expresses it, "It cannot be supposed that the stealthy hours carry away no quality of tissue, no quantity of energy."

Additional evidence that "stress and strain" play a part in the production of atherosclerosis is not lacking. In congenital stenosis of the aorta atheroma is most prominent, or even exclusively found, in the proximal part of the aorta. Atherosclerosis of the pulmonary arteries is absolutely independent of atherosclerosis of the greater circulation and occurs only when an increased pressure is present within the pulmonary circuit. It is commonly seen, therefore, in cases of mitral stenosis, emphysema, and certain forms of congenital heart disease. Normally atherosclerosis does not occur in the pulmonary system because, as stated by Moschowitz,[2] the normal pulmonary pressure is unusually low, one-sixth of that within the aorta.

Again, atherosclerosis is most prominent in that portion of the vessel where the stress is the greatest, for example, at bifurcations and at points of narrowing of the arteries. This may be seen in the smaller vessels as well as the larger ones. Those commonly involved are the arteries of the Circle of Willis and the coronary arteries. Leary[3, 4] has shown that the standard lesion in the coronary arteries is atherosclerosis. He has also demonstrated that the mechanism by which

Presented as part of Symposium on Vascular Diseases, Eighty-sixth Annual Meeting, Illinois State Medical Society, Springfield, May 21, 1936.

coronary atherosclerosis produces death varies in different age groups. In the young the deposition of lipoid material in the intima results in fibrosis and narrowing of the lumen of the arteries. Sudden death is usually due to thrombosis. In old age the presence of lipoid material does not stimulate fibrosis. The cells accumulate in large masses, the nutrition of which becomes inadequate. Necrosis and autolysis result in liquefaction of the cell masses and the production of atheromatous "abscesses." Rupture of these abscesses, when occurring in coronary arteries, usually produces sudden death.

Somewhat paradoxically, Denny[5] has pointed out that stress per se may not be the only factor involved. In a statistical study he demonstrates the comparative rarity of coronary disease in men with occupations requiring *daily* physical effort, and show that it is most frequently found in individuals with sedentary occupations, whose lives have become progressively more inactive through the use of the automobile and other modern labor-saving devices. This suggests that physical inactivity, rather than the stress and strain of manual labor predisposes to it.

On the other hand, references are often seen in the literature concerning the frequency of coronary disease among golfers. Riesman and Harris[6] state: "The majority of coronary individuals are active and athletic, often passionate golf players." At first sight this seems inconsistent, according to Denny, with the theory that physical inactivity favors the development of coronary disease. We must remember, however, that golf is not a *daily* exercise. It is usually played only once or twice a week for a period of about six months, following which there is an equal portion of the year when the average golfer takes little or no exercise. It is certain that playing golf in the manner here described offers no protection against coronary disease and may perhaps promote it. While little can be done to reduce worry and nervous strain, our physical activity *can* be controlled. Once it is recognized that coronary disease results, in part at least, from lack of muscular activity, we have a very definite point of attack. Obviously, one need is for a campaign of education to teach the public (and the profession) that *daily* exercise is one of the essentials of health; that strenuous exercise taken occasionally or limited to only part of the year may be dangerous.

One of the most direct and repeated contacts that an organism has with its environment is through its food. When a substance appears as commonly in a diseased artery as does cholesterol, it seems obvious that there is some error in its utilization or elimination, or some local cause for its deposition in the vessel walls.

Many years ago Anitschkoff demonstrated that atherosclerosis resembling human atherosclerosis could be produced in rabbits by feeding them a diet rich in cholesterol. This work has been successfully repeated by others, notably by Duff,[7] who has indicated the essential factors necessary for its production:

1. There must be a preliminary local alteration in the vessel wall, supposedly by some irritant such as bacterial toxin or chemical poison.
2. There must be an abnormally high blood cholesterol.
3. There must be precipitation of lipoids (cholesterol) at the point of injury.

Duff points out that the initial stage in the development of human atherosclerosis consists of local changes in the walls of the arteries themselves. In man, as in rabbits, there is every reason to believe that these changes follow as the result of some sort of injury to the arterial walls. The presence of such injury has been repeatedly found following infections such as influenza, typhoid fever, as well as other infectious diseases. The exact relationship of these changes to the formation of atheroma in humans is as yet, however, unknown.

Duff further points out, on the other hand, that experimental cholesterol atherosclerosis in rabbits and human atherosclerosis are not identical. In humans hypercholesteremia is *not* regularly found, and even when present, does not seem to accelerate the processes already inaugurated. If a disturbance of cholesterol metabolism occurs in humans the fact remains to be demonstrated in the future. This opinion has been expressed by others, notably Medvei in 1932[8] and Elliot and Nazun[9] in 1936.

So far as foods other than those containing cholesterol are concerned, it becomes constantly less obvious that any single one can be convicted of causing vascular degeneration. In the past tobacco and alcohol have had their day, but have,

for the present at least, been confined to oblivion as a cause of atherosclerosis.

Total food intake is another problem. McCay and Crowell[10] have shown that rabbits fed a balanced diet so low in calories as to retard growth and maturity, have less atherosclerosis and a measurably longer life than those on so-called optimal diets.

From these considerations it seems likely that the prevention of acute infections offer a possible means for retarding the formation of atheroma. Whether the induction of mild malnutrition by dietary restriction will delay the development of degenerative vascular disease in man as it does in rabbits, remains yet to be demonstrated.

Mönckeberg's sclerosis: Mönckeberg's sclerosis is that type of hardening of the arteries observed in the superficial vessels of elderly people. The pipe-stem radials and tortuous brachials are not a manifestation of atheroma, but a primary medial degeneration accompanied by calcification. The arteries affected are medium-sized ones of the muscular type, especially those of the limbs and parieties. The distribution of Mönckeberg's sclerosis is patchy as in atheroma. The primary change is a degeneration of the muscular layer followed by calcification. These alterations cause no appreciable narrowing of the lumen.

This type of sclerosis is essentially a senile change, again the result apparently of the stress and strain of life. It has been described as the natural end of a worn-out vessel. At the International Conference held at Utrecht about three years ago, the only definite thing that could be decided concerning its etiology of degenerative vascular disease was that heavy manual labor predisposed to the premature development of Mönckeberg's sclerosis.

The effects of hard physical work can be seen in the arm and leg arteries of laborers. Marchand[11] has cited an interesting case of a man of thirty-five years who had poliomyelitis in childhood. There was marked evidence of Mönckeberg's sclerosis in the femoral artery of the normal leg but none in the artery of the paralyzed leg. The writer can glean from the literature no suggestion of a plan which will prevent this type of arteriosclerosis, and at the same time allow sufficient physical activity for self preservation under the present economic system.

Arteriolosclerosis: Thus far the arteriosclerotic changes described consist of nodular degeneration of the intima or calcification of the media. The arteries affected have ranged in size from the aorta to the coronaries. The lesions have had no relation to clinical hypertensive heart disease.

There is another lesion affecting what has been called the intimate vasculature of certain organs, and associated more or less constantly with an increased blood pressure. This is known as diffuse hyperplastic sclerosis or arteriolosclerosis. The lesion consists of a subendothelial thickening of the intima, hyaline at first, but later becoming fatty. The swelling of the intima causes great narrowing of the lumen, and sometimes complete obliteration. These changes are best seen in the kidneys, the splenic, pancreatic, and hepatic arterioles and the small vessels of the meninges, brain and brain stem.

The association of diffuse hyperplastic sclerosis and hypertensive heart disease has been definitely established by Fishberg[12] and others. Recently, the observations of Kernohan, et. al.[13] have confirmed this fact. These investigators excised small portions of the pectoral muscles during life in cases of benign and malignant hypertension. Many of the benign and all of the malignant cases showed hyperplastic sclerosis of the arterioles.

Weiss[14] has demonstrated that the most early significant change found in this form of vascular disease consists in an increase in the "tonus" of the arterioles with subsequent elevation of blood pressure. It is now quite generally accepted that arteriolosclerosis is the result of stress due to increased intravascular tension. The exact cause of this increased tonus is as yet undetermined. It has been assumed from indirect clinical evidence that it may be due to increased efferent sympathetic nervous impulses in the vasomotor system. This theory has been supported by the work of Hines, Brown, Schulze and Schwab.

Assuming that reactability of the blood pressure is an index of vasomoter tonus, Hines[15] and Brown have devised the so-called "cold pressor test" for the purpose of measuring this reactability.

By the local application of cold (placing the hand in ice water) they have produced strong,

thermosensory stimulation resulting in elevation of blood pressure.

More than 98% of all subjects with essential hypertension showed maximal reactions of blood pressure. Individuals with normal blood pressures can be divided into two groups: those with minimal, and those with excessive (abnormal) reactions. It appears probable, that at least some of the latter group will develop hypertension in the course of time if exposed to accessory factors as strain, etc.

It would appear that this is a constitutional factor (hyperactive vasomotor system) which can be influenced by environment. Attention has been directed by Schulze[16] to the significant fact that although arteriolar hypertension is practically unknown among the native African negroes, the disease is unusually prevalent in their descendants living in this country. He emphasizes the importance of environmental influences in the production of arteriolosclerosis in the American negro. His observation supports the theory advanced by Paul White that essential hypertension (and its subsequent sclerosis) is due, in part at least, to "The world's mad rush of today."

The control of this malady lies, it seems, in the early detection of hypertension by the family physician, by means of the "cold pressor test", as well as the usual methods of physical examination. When discovered the most effective means of treatment seem to lie in the thorough education of the patient in the pursuit of tranquality, in the early stages of the disease before irreparable vascular damage has occurred.

Summary: The cause of degenerative vascular disease is obscure. That increased stress is capable of producing all three types of arteriosclerosis is evident. Yet no single theory of etiology is wholly satisfactory in explaining premature death from disease of the blood vessels. There is, however, enough evidence at present to make it seem probable that there are controllable environmental factors which in some cases can be altered so as to delay or favorably alter the progress of vascular degeneration.

868 Citizens Bldg.

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FUNDUS CHANGES IN HYPERTENSION AND ARTERIOSCLEROSIS

KATHERINE HOWE CHAPMAN, M. D.

CHICAGO

The retinal changes occurring in hypertension and arteriosclerosis have long been known as albuminuric, nephritic or arteriosclerotic retinitis. However, it has been suggested that they would be more correctly called retinopathies because the lesions are not inflammatory, but result from a circulatory disturbance. Of these the most important are the arteriosclerotic retinopathy and the hypertensive neuroretinopathy.

In the development of an arteriosclerotic retinopathy, the fundus first shows the vessel changes of a retinal arteriosclerosis. There is a reduction in calibre of the whole arterial tree. This is apparently closely correlated with the blood pressure. Some oculists say that they can estimate the blood pressure by the size of the arteries.

The light reflex from the arteries is normally the narrow streak reflecting the high light of the blood column. This becomes wider as the walls of the arteries become thickened and less transparent. The blood column is less clearly seen through this thickened wall and appears yellowish or even white at times when the artery is nearly obliterated. The arteries have then an appearance of silver wires and are called silver wire arteries or copper wire arteries. Yellow streaks may accompany an artery or vein caused by a thickening of the supporting structure or it may be the thickened vessel wall.

Where arteries cross veins, the latter are com-

Read as part of Symposium on Vascular Diseases, Eighty-sixth Annual Meeting, Illinois State Medical Society, Springfield, May 21, 1936.

pressed. Only a denting may be seen, or the vein may seem to be obliterated entirely at this point. At these crossings the vein tends to cross at right angles. Distal to the crossings the vein is distended, tortuous and darker because of the blocking of the return flow. Later the arteries become irregular in calibre. Circumscribed constrictions and dilatations develop just as patches of sclerosis develop in the aorta and other large vessels, rather than an even thickening of the walls.

Most of the vessel changes are due to an endothelial proliferation of the intima of the larger retinal arteries. The lumen is thus narrowed. There is also a connective tissue increase in the walls with hyalin degeneration which increases the visibility of the arterial walls. The denting of veins by arteries crossing them results from the common sheath which encloses them at this point. The thickening of the arterial wall and the increased tension within the artery encroach on the space of the softer vein.

Other changes forming the picture of an arteriosclerotic retinopathy are hemorrhages and exudates. The hemorrhages are small, about the width of a retinal artery. If deep in the retina they are round, if superficial they are linear. They often lie along a vein. As a rule they are not very numerous, but they may be many scattered through the fundus.

Exudates form within several disc diameters of the macula. They are white, shiny, hard and flat, of irregular outline. In size they are small, from a half to two times the width of a disc vein. They tend to form groups and coalesce into larger patches. At times these form a partial ring about a disc diameter in width, encircling the macula about one or two disc diameters from it—the circinate retinitis. The hemorrhages are absorbed or leave more white spots which are a fattay degeneration due to poor blood supply.

This disc may be more red than normal, or yellowish; its outlines are clear. Media are clear and the color of the fundus normal. The condition develops gradually and may remain about the same for years. The patient often has no eye symptoms unless a hemorrhage involves the macula in which case there is a diminution of vision.

Local vascular accidents are apt to occur in patients with an arteriosclerotic retinopathy. Thrombosis of the central vein or one of its branches is the most frequent of these. The fundus distal to the thrombosis is filled with many fine linear hemorrhages all radial to the disc. The veins are engorged and very tortuous so that loops appear and disappear in the swollen retina. The arteries are often seen with difficulty because of the hemorrhages and edema of the retina. The disc margins are indistinct, often the disc indistinguishable. The retina is edematous.

The onset is sudden, usually at night so that the patient notices a marked loss of vision on getting up in the morning. No discomfort is experienced unless other complications such as a glaucoma develop. As the condition lasts, the hemorrhages slowly absorb, the venous distention decreases and finally atrophic vessels are seen accompanied by white streaks or replaced by them. Some pigment disturbance occurs throughout the fundus. On the disc fine new vessels may develop. The disc becomes pale. The thrombosis occurs just behind the lamina cribrosa. If only a branch of the central vein is thrombosed the changes are limited to the area supplied by this branch. The loss of vision is not as severe in this case. The thrombosis occurs in this case usually at an arteriovenous crossing.

A case typical of this recently presented itself. A woman, Mrs. M. S., aged 65, was referred by her physician who had been treating her for hypertension. For several weeks the right vision had been noted to be poor, but nothing had been done about it. Her right corrected vision was 20/50, the left 20/20. In the left fundus the following was noted: The disc was sharply outlined, somewhat yellowish. The retinal arteries were about half the size of the veins instead of the normal two-thirds. Veins were deeply indented by arteries, and veins somewhat enlarged and tortuous peripheral to such crossings. Arteries were decidedly yellowish with wide light streak. A few very fine white dots were seen near the macula. There were no hemorrhages.

In the right eye were seen the same vessel changes except that beginning about a disc diameter above the disc, there was an area filled with hemorrhages. This extended from above the disc nearly down to the macula temporally. The veins were decidedly tortuous and the arteries hard to find with the hemorrhages and white exudate in the retina.

Marked arteriosclerotic changes were present in both fundi. It is possible that if her eyes had been examined earlier and the condition recognized more vigorous treatment could have been instituted and the thrombosis prevented. A week after the examination the blood pressure was down to 148/100.

The picture of hypertensive neuroretinopathy begins with an arteriolar sclerosis rather than a sclerosis of the larger retinal vessels. The arterioles become tortuous, the walls yellowish. About the macular region, vessels not usually seen become visible as small corkscrew branches. There is severe narrowing at the blood column, marked indenting of veins by arteries. A swelling of the nerve head occurs early making the disc outlines indistinct. This swelling extends out into the retina for a varying distance. The disc may be pale if there is a secondary anemia or there may be a venous hyperemia. The veins are engorged and tortuous.

Soft fluffy white patches appear in the retina. These are called "cotton wool" patches. They vary in size being about a half disc diameter and may be so numerous that a dense white ring is formed around the disc. They are seen only within a few disc diameters from the disc. Some of the shiny white patches may also be found about the macula. The "cotton wool" patches later become shiny and flat. In the macula itself is the star figure of white lines radiating from the center. This may be only a few lines, or may completely surround the disc.

Hemorrhages are present. They are flame shaped or linear and small. They run parallel to the vessels and are numerous near the disc but not so numerous as in a thrombosis.

In the nerve head is a serofibrinous exudate and the white spots are made up of large cells laden with fat. There is edema between retinal elements and elongated hemorrhages in the nerve fibre layer. The arterioles show intimal thickening.

Hypertension always precedes the retinal changes. The retinal arterioles are probably involved in the general vasoconstruction that produces the hypertension. The arteriosclerotic retinopathy occurs chiefly in essential hypertension. The hypertensive neuroretinopathy occurs in the end stages of glomerulonephritis and essential hypertension. It is not found in focal nephritis. Nephroses in which albuminuria is greatest, do not develop this picture. The picture develops in the hypertension of pregnancy and occasionally in acute glomerulonephritis.

The prognosis is grave when a hypertensive neuroretinopathy is found. A patient seldom lives more than a few months (occasionally years) after this develops. In the hypertension of pregnancy the prognosis is not so bad but it is an indication for immediate termination of the pregnancy. In acute glomerulonephritis, also, there is occasionally recovery, but it indicates a severe process.

VERTIGO AS A SYNDROME IN VASCULAR DISEASE

S. L. Shapiro, M. D.

CHICAGO

Any discussion of vertigo must be based on a clear conception of what is meant by the term. One might begin by defining it as an apparent displacement experienced by an individual in relation to his surroundings. Such a definition would recognize *movement* as the first essential of vertigo. The patient may feel as if he is turning around or as if the room is revolving about him (rotational vertigo); the floor or ceiling may appear to tilt towards him or to feel like the deck of a ship at sea instead of firm ground (tactile error); or he may feel a strong pull forwards, backwards or to one side (pulsion). *The awareness that the experience is false* constitutes the second essential, serving to differentiate vertigo from the ataxias of tabes and similar diseases where the sensation comes after the loss of equilibrium has taken place. A third feature is a strong tendency towards compensatory movements; the person affected will put out a hand, lean against a wall or merely stand still for a moment. Add further that the onset is abrupt and the duration of the attacks generally brief and we have all the elements that enter into a description of vertigo.

In describing these sensations people as a rule use the word, "dizziness." This term, however, is also employed as a synonym for many unpleasant experiences such as spots before the eyes, things growing black before the eyes, double vision, head noises, nausea and various emotional states. It is important not to accept a simple complaint of "dizziness" without further questioning since, whatever our idea may be as to significance of flashes before the eyes or some of

Read as part of Symposium on Vascular Diseases, Eighty-sixth Annual Meeting, Illinois State Medical Society, Springfield, May 21, 1936.

From the Department of Otolaryngology, University of Illinois.

the other symptoms which the patient may really have in mind, there can be no doubt as to the meaning of an attack of true vertigo. We know that this indicates a disturbance either in the internal ear or in the pathways leading from the labyrinth to the brain or in the brain itself and as such demands our serious attention.

It is not my intention here to enter into a description of the vestibular apparatus. This can be found in any text-book on otology. It is sufficient for our purpose to recall that the organs in question consist peripherally of the three semicircular canals, utricle and saccule in the internal ear; that these structures are connected with certain vestibular nuclei by means of the vestibular part of the eighth nerve; and that further pathways run from the nuclei respectively to the anterior horns of the spinal cords, posterior longitudinal bundle and through several relays to the cortex of the temporal lobe. Vertigo arises as a result of stimulation of the last named ending and is a specific sensation peculiar to the vestibular apparatus. Its significance from a biologic standpoint may be appreciated when we realize that it is scarcely ever experienced either in healthy men or in animals under normal conditions. Ordinarily the labyrinth and its associated cerebral connections act in an automatic manner to maintain equilibrium by making adjustments of the eyes, limbs or body in response to deviations of the head from its accustomed position; there is no cortical activity involved and no accompanying sensation. It is only under circumstances such as rarely arise normally for animals, such as a fall with repeated whirling through the air, that sufficient stimulation of the labyrinth takes place to cause vertigo. This final effect must be considered as an emergency bell rung by nature notifying the individual that his ship is, so to speak, out of control and that he must make every effort to avoid a crash.

If vertigo is to be interpreted as a warning signal under physiologic conditions this is even more true in clinical practice. In the vestibular apparatus we possess an extremely sensitive indicator which reacts in its specific way not only to definite lesions of the labyrinth or its intracranial connections but to many indirect influences such as toxins from distant foci, irritations of nerves in close proximity to the ear or the vestibular centres in the brain, increased intracranial pressure and finally to what I consider the most frequent source of vestibular disturbances in general practice, namely, alterations in the blood supply to the internal ear or its centres in the brain. It can be readily understood that the specific causes of vertigo are legion: I shall attempt to enumerate most of these in discussing the differential diagnosis later but for the present will confine myself to those of vascular origin.

Vertigo arising from disturbances of the circulatory system may be listed as follows:

A. Vasomotor instability without evidence of structural pathology in the blood vessels. This group comprises a large percentage of cases in which vertigo and other eighth nerve symptoms occur. In certain individuals, because of a congenital or acquired abnormal sensitivity of the vegetative apparatus, spasms are apt to occur either in the internal auditory artery or in some of the terminal vessels supplying the vestibular centres in the brain with resultant anemia of the parts supplied and attacks of vertigo, nystagmus and ataxia which are often extremely violent and may last for hours. There is no doubt that this is the basis of most of the so-called cases of Ménière syndrome.

Under the heading of vertigo due to vasomotor disturbances can probably be included the prodromal vertigo of epilepsy, a large percentage of the vertigo in chronic post-concussion states and certain cases of migrane which are accompanied by transient loss of one-half of the field of vision and violent vestibular upsets. I recall in particular a physician who had been subject to spells of this nature since childhood. I saw him during an attack with a marked spontaneous nystagmus and vertigo of an extreme character; the ocular findings had already begun to recede.

B. Blood dyscrasias. Any of these from simple anemia to the leukemias may cause vertigo owing to insufficient oxygenation of the vestibular structures. In addition leukemic deposits and degenerative changes in the internal ear are also responsible.

C. Circulatory disturbances with organic changes in the blood vessels of the internal ear or brain; under this heading I beg leave to include hypertension even without demonstrable arteriosclerosis. These patients are particularly

apt to complain of dizziness on stooping or arising quickly. The basic reason for the symptom lies in the inability of the sclerosed vessels to adjust themselves quickly to the effects of gravity with resultant transient anemia. In cases of essential or other hypertension with vertigo although there is on first thought an ample supply of blood to the brain it will be found as a rule that the diastolic pressure is not constant with the same result—momentary anemia. It might be mentioned that abnormally low blood pressure is a far less frequent cause of vertigo than hypertension.

D. Cardiac abnormalities. Doctors Bishop and Bishop in a recent study of 5,000 histories of cardiac disease found syncope or vertigo as a primary complaint in 274 patients. Of these 218 had had electrocardiagrams, analysis of which showed a wide variety of cardiac conditions, including 59 normal charts. Either an accelerated heart such as occurs in paroxysmal tachycardia or a retarded one where the apex beats do not reach the periphery may be involved. In the first type the cause of the insufficient blood supply reaching the brain is found in the attentuated diastolic pause resulting in inadequate filling of the chambers with a resultant diminished output; in the second the same thing occurs because premature beats expel less blood into the circulation than a normal beat and may produce no arterial pulsation at all. An important group of symptoms is composed of vertigo or syncope attacks combined with extrasystoles which are evident only at the apex and a slow pulse; this is the well known Stokes-Adams syndrome due to partial heart block. It must be remembered that in cardiac cases vertigo represents the mildest form of cerebral anemia due to deficient heart action; more pronounced cases lead to transient faintness; and still more severe involvement to attacks of complete unconsciousness with or without convulsive seizures.

The diagnosis takes in two factors. First, we must determine whether or not there is a true vestibular disturbance. In many cases the patient's description so evidently fulfills the requirements of true vertigo that we may be fairly certain, particularly if some evident cause such as a real cardiac abnormality or vascular is discovered, that we are dealing with a genuine vestibular disturbance and not some neurasthenic complaint. Even in those cases, however, it is best to look for corroborative evidence. If the patient is seen during an attack he should be examined for spontaneous nystagmus. This is best sought for with the aid of Frenzel's glasses —an electrically illuminated spectacle frame with strong convex lenses which I have found invaluable in bringing out latent nystagmus as well as in helping to differentiate between the peripheral and the central types. The patient is examined with the glasses on not only in the sitting position, but on his back, abdomen and side; he is made to change position quickly, stoop and shake his head with the object of inducing vertigo if this is not present at the moment and at the same time watching for nystagmus. In an experience embracing over 1,000 cases of vertigo from various causes I have yet to see an instance where the complaint was present at the time of examination in which I have not detected spontaneous nystagmus at the same time.

The second factor involves the diagnosis of the site at which vertigo is produced, i. e. whether in the internal ear or in the brain and if possible, the approximate location in the brain. This usually requires training and experience in neuro-otology. The type of vertigo present, the kind of nystagmus which is elicited under the Frenzel glasses, the presence of ataxic manifestations as past pointing, drift reaction or Romberg and their relation to the slow component of the spontaneous nystagmus, the presence or absence of tinnitus or impaired hearing simultaneously with the vertigo attacks and the results of the cochlear and vestibular examination between attacks may all be necessary to formulate an answer. It might be stated that improved methods of testing the labyrinth have largely eliminated the use of large quantities of cold water and the maximal turning tests which can be very unpleasant and even dangerous in arteriosclerotics; more exact information can be obtained, particularly in the type of case under discussion with the use of minimal caloric and rotatory stimuli which give no subjective disturbance.

The diagnosis of the particular cardiovascular condition involved is, of course a matter for thorough study of the individual as a whole with particular attention to the circulatory apparatus. In many vasomotor disturbances, including some

with the most violent Ménièreform attacks nothing of a definite nature will be found between spells. In others repeated examination may be necessary to determine the cause. Functional conditions of the circulatory system must be differentiated from those of a more serious character and cardiac conditions in which vertigo is a prominent symptom such as partial heart block from other affects such as petit mal which it may resemble superficially. In the differential diagnosis of vertigo it must not be assumed to be on a vascular basis without a thorough examination of the ears, hearing and vestibular function and generally also a neurologic examination. A list of conditions other than those mentioned which can cause vertigo may be given as follows:

1. Within the middle ear:
   a. Acute or chronic otitis media causing toxic absorption without an obvious lesion of the internal ear.
   b. Obstruction of the Eustachian tube.
2. Within the internal ear:
   a. Labyrinthitis, circumscribed, serous or suppurative, after middle ear infection.
   b. Acute infectious diseases without middle ear infection.
   c. Lues.
   d. Herpes zoster oticus.
3. The eighth nerve:
   a. Neuritis following any infectious disease.
   b. Neurofibroma.
4. Intra-cranial conditions other than those mentioned:
   a. Meningitis, serous or suppurative.
   b. Brain abscess.
   c. Tumors of the posterior fossa.
   d. Systemic diseases as cerebrospinal lues, encephalitis, multiple sclerosis, etc.
5. Toxic vertigo: This includes various foci of infection in the teeth, sinuses, tonsils or other parts of the body and a large group of drugs which irritate the vestibular apparatus such as alcohol, nicotine or quinine.
6. Reflex irritations such as those from impacted teeth and plugs of cerumen in the external auditory canal have been known to cause vertigo. Usually the trigeminal nerve forms a part of the arc but irritation of the carotid sinus itself is also known to produce vertigo or syncope.
7. Emotional disturbances: It behooves us to be careful of this diagnosis as a cause, but there is no doubt as to this factor producing vestibular upsets. We are all familiar with the patient who grows dizzy or faints as a prelude to some trifling minor operation and I have myself witnessed a violent nystagmus as an accompaniment of this type of vertigo or syncope. The vertigo which occurs in some people on looking down from a height is of the same type. It is probable that the vasomoter apparatus plays an important part in emotional vertigo.

Treatment: The treatment of vertigo of cardiovascular origin is, of course, essentially that of the cause. If the attack is a severe one the patient must be kept very quiet in a darkened room until the worst symptoms are over; as a rule little is tolerated by mouth and medication to decrease the sensitivity of the vestibular centres or to quiet the nausea which is a frequent accompaniment must be by injection or suppository. Many drugs such as luminal, chloretone and scopolamin are recommended as sedatives; my own preference is for bromides particularly in the organic form such as sedobrol (Roche) for oral use; Bulbocapnin (Merck) can be given orally or by injection but has the disadvantage of being quite expensive. Between attacks in the functional vasomotor type the patient must be studied for signs of abnormal vagus or sympathetic activity. Those with small pupils, dry skin and slow pulse may be tried on atropin, those with large pupils, moist skin, frequent flushing and rapid pulse on pilocarpin. It is impossible in many cases to state whether the immediate cause of the labyrinthine storm is a vascular dilatation or a spasm so that treatment along this line must be empirical. Injections of acetyl-choline (.1 gm.) will relax a vascular spasm and adrenalin will sometimes terminate an attack indicating that a vaso-dilatation was at fault. In certain cases dehydration with a salt-poor diet and large doses of ammonium chloride after the method advocated by Furstenberg gives good results. Two more points: First, in vertigo due to hypertension don't be surprised if the vertigo increases in certain people when the blood pressure comes down — contrary to what might be expected. Second, be very cautious in advising surgical means of curing vertigo such as the division of the eighth nerve which s now much in the literature as these are still open to considerable reservation.

PREGNANCY TOXEMIA

It is common knowledge that the rigorous application of antenatal study has largely overcome all forms of pregnancy toxemia in institutional practice. More than 75 percent, if not nearly all, of the cases can be avoided.—Dr. P. Brooke Bland, of Philadelphia, in *J. A. M. A.*, Dec. 3,, 1932.

THE DIAGNOSIS OF PERIPHERAL VASCULAR DISEASES

GEORGE W. SCUPHAM, M. D.

CHICAGO

The development of widespread interest in peripheral vascular diseases has resulted in improved methods for the early diagnosis of these conditions as well as their treatment. The benefits thus obtained are evident, but it is entirely inadvisable to focus our attention too closely upon peripheral vascular phenomena without due consideration of the relationship of these blood vessel disorders to those of the entire cardiovascular system, even in those types which may seem to be primarily diseases of the extremities.

The large number of excellent papers which has been published on vascular diseases has greatly clarified the matter of their diagnosis. But confusion still exists. This is mainly for two reasons: 1. The subject seems complicated. 2. There is a general impression that special apparatus and complicated equipment are necessary for diagnosis. Neither is true. Most cases of organic arterial disease can be identified as such without special equipment. A fair degree of knowledge of the subject can usually differentiate functional vascular disorders. It is also true that in some cases differentiation as to type is impossible with all the equipment available in the most elaborate clinic. In fact, it is often possible to achieve as much with but little apparatus. However, the essential thing, recognition of the presence of vascular disease or its absence, can usually be made.

Pearse[1] comments on the importance of a careful history. The diagnosis often hinges on the story of the disease. The same can be said for general examination. The importance of this has been emphasized many times, and is particularly true in regard to consideration of the cardiovascular and nervous systems. Impairment of cardiac function, particularly disorders of mechanism, may be responsible for the rapid exaggeration of symptoms referable to structural arterial diseases in the extremities. Cardiac disease with the formation of thrombi furnishes the commonest source of arterial emboli. Metabolic or infectious diseases are frequently the cause of circulatory impairment or may simulate impairment when circulation is adequate. Disease of the central or peripheral nervous system is capable of simulating vascular disease and is a common cause of peripheral vasospastic phenomena. The Raynaud syndrome is not uncommon as a manifestation of other diseases. Acrocyanosis is nearly always secondary.

Obliterating arteriosclerotic disease is usually part of a general atherosclerosis and cerebral cardiac and other manifestations may be present simultaneously. Thromboangiitis obliterans is essentially a peripheral disease but visceral vascular involvement has been reported with increasing frequency. Periarteritis nodosa is essentially a general visceral vascular disease but cases have been reported in which the initial symptoms were in the extremities.[2] Severe anemia, by pallor and even intermittent claudication,[3] may simulate obstructive disease, and in polycythemia both arterial thrombosis and vasodilator phenomena are common.

The study of peripheral vascular phenomena is so inextricably bound to visceral vascular disease that the study of one must always be with ready recognition of the possibility of the others.

Pain is the outstanding symptom of organic disease. It is seldom present in the functional disorders and when it does occur is usually not severe. Pain, sudden in onset with maximum severity, intolerable in character, and relieved with great difficulty, is due to sudden arterial occlusion: either embolism or rapidly developing thrombosis. This represents an acute type of disease and pain is rarely absent. The chronic slowly progressive conditions such as thromboangiitis obliterans and arteriosclerosis obliterans, and the non-specific types of arteritis usually have a story of the gradual development of pain. It is not invariably present, but one type or another occurs at some stage in the progress of the disease. Intermittent claudication is the characteristic expression of ischemia and has long been recognized as such. Pickering[4] states that in the absence of severe anemia it may be taken as an indication that severe structural disease of the arteries is present. Care must be taken not to confuse this type of pain with that of peripheral neuritis, particularly sciatica, static orthopedic conditions, and even arthritis.

Read as part of Symposium on Vascular Diseases, Eighty-sixth Annual Meeting, Illinois State Medical Society, Springfield, May 21, 1936.

Pain at rest of a dull boring or burning type occurring particularly at night, especially if temporarily relieved by change in the position of an extremity, is extremely suggestive of arterial impairment sufficiently severe so that loss of tissue integrity is imminent if not already present. As the disease progresses, the pain becomes constant. Burning parasthesias are usually present in functional impairment of the capillaries and other small vessels of the skin. This type of symptom sometimes occurs in thromboangiitis obliterans in which vasodilator disturbances of the capillaries may occur, less commonly in arteriosclerosis, more often in chilblains and minor types of frost bite, and diseases and injuries of the skin with secondary vascular phenomena, or with inflammation.

The diagnostic methods applied for objective study may be considered in the order of the ease of their application. The abnormalities of appearance may be considered first. Gangrene is the result of prolonged interruption of blood flow. Indolent ulceration follows impairment of blood supply either organic or spasmodic and may be associated with chronic infection.

Abnormalities of color are important but must be given careful interpretation on the basis of the facts in the case and must be considered in relationship to skin temperature and other findings.

In the absence of severe anemia, local pallor indicates that the superficial vessels are empty. It is usually characteristic when the blood is massaged out of an extremity and inflow is impaired by organic or spasmodic constriction of the vessels. Pallor when an extremity is raised above the level of the heart, strongly suggests impairment of arterial inflow while the blood drains out on the venous side of the circulation. If rapid cyanosis follows when the limb is changed to a dependent position, the significance is increased. Persistent pallor occurs when the inflow of blood is limited to a marked degree or there is functional constriction of the superficial vessels as in the pallid stage of Raynaud's disease. Pallid skin on the hands or feet is always cold if the color is dependent upon impaired arterial inflow, regardless of whether the cause is organic or functional.

Redness of the skin is due to dilation of the superficial vessels. It occurs as the result of local tissue injury. This may be the result of impaired blood supply; then heat loss is also present. Exposure to cold, chronic inflammation, exposure to ultra violet light or mechanical injury may also result in dilation of the superficial vessels. Redness with normal or increased temperature is compatible with normal or increased blood flow as in erythromelalgia.

Local cyanosis is due to local slowing of the blood stream inadequate to meet the oxygen requirements of the part. In cold skin, cyanosis may occur as a result of spasmodic constriction of the arterioles; under these conditions the conclusion as to its significance is impairment of arterial inflow, with return inflow of venous blood. If the limb is warmed the arterioles may be assumed to be dilated; local cyanosis then is strong evidence of structural arterial disease. Postural changes in color are common in persons with organic disease.

Palpation of the vessels of an extremity is perhaps the most widely used objective diagnostic method for determining the condition of the circulation. These findings are also open to certain errors of interpretation. It is usually assumed that pulsation in the dorsalis pedis and posterior tibial arteries indicate that the arterial circulation is intact. This is true only to the level of palpation. Occlusion may exist beyond. The absence of palpable pulsation need not indicate disease. The circulation may be normal or nearly so when no pulsations can be felt as in coarctation of the aorta or impaired cardiac function. In arteriosclerosis, there may be little or no pulsation and yet the circulation may be adequate through sclerosed and calcified vessels. The failure of pulsation when the limb is warm is strong evidence for occlusive disease but cannot be relied upon if it is the only finding. Visible capillary pulsations in the digits of an extremity after the limb has been warmed is good evidence of intact circulation.

Absence of pulsation always raises the question of anatomic variations in the location of the vessels. Reich[8] in observations of 500 healthy persons found absent dorsalis pedis in 4%. and absent posterior tibial in 5%. while in another 8% the dorsalis pedis was found in other than normal location.

The presence of ischemia in absence of severe anemia manifested spontaneously as intermit-

tent claudication, or demonstrated by muscle action experimentally is indicative of impaired arterial circulation. It is necessary to exclude other types of pain which might be confused with claudication. Lewis, Pickering and Rothchild have employed this idea[3] in a test of circulatory efficiency. With the patient recumbent, the ankle joint is repeatedly and fully extended against resistance at the rate of one movement a second. In complete experimental obstruction the pain appears in twenty to thirty seconds and disappears in five seconds. In diseased conditions the time for pain to appear and disappear may be of some importance in interpreting the amount of impairment. Samuels[6] has used a similar test for ischemia. He places the patient recumbent and with the leg in the vertical position the foot is flexed and extended at the ankle. In addition to early pain and fatigue, conspicuous pallor of the plantar surface occurs.

The test for reactive hyperemia as described by Pickering[4] has been found to be very useful and requires no apparatus but a sphygmomanometer. Two precautions are necessary to avoid error: 1. The peripheral vessels must be dilated. This is accomplished by having the body warm enough to insure maximum dilation of the vessels of the skin in the extremity to be tested, or by warming the limbs by the application of external heat. 2. The vessels of the skin must be empty of blood before the circulation is arrested.

After the extremity has been warmed it is placed in a vertical position with the patient recumbent. The hand or foot is flexed and extended at the ankle or wrist several times to expel the blood from the superficial vessels and the blood pressure cuff is then inflated above the systolic pressure. The extremity is then placed horizontal and kept warm for several minutes. When the pressure is released, a flush appears in the skin below the point of interruption and spreads to the digits normally in less than five seconds. It is bright in color and reaches a maximum in less than fifteen seconds and fades slowly. In structural disease the flush spreads slowly, is patchy or mottled, and is considerably delayed to the tips of the digits. The flush is then somewhat cyanotic in appearance and lasts longer. The reaction in persons with uncomplicated Raynaud's disease or acrocyanosis is of the normal type. This test has been found to be of diagnostic importance in all cases of structural impairment to the arterial circulation.

Surface temperatures are the most widely used of all the objective methods for the determination of blood flow through an extremity. The temperature of the skin at any one point is the resultant of the heat brought to it largely by its blood supply and the heat lost from its surface.[7] That other factors exist must be admitted and in health there are extreme fluctuations in temperature and marked variations with both environmental conditions and the vasomotor reactions of the individual. Small changes in environmental temperature, the presence of air currents, the humidity and rate of evaporation of the surface moisture are all sources of error which must be controlled. Thus it becomes evident that surface temperature unless controlled with great accuracy becomes a variable which is far from precise. It therefore is apparent that coldness of an extremity does not suffice for the diagnosis of either arterial disease or spasm. Normal vasoconstriction may be responsible. Unilateral coldness when both extremities have been exposed in the same way almost always indicates impairment of circulation. The temperature gradient is also important. A sudden decrease in temperature from the proximal to the distal portion of an extremity is evidence of impairment of circulation; a gradual one is not.

A rough idea of differences of surface temperature can be obtained by simple palpation. Differences of 1°C. can be appreciated after some experience and in many cases of structural disease the variations amount to 2-4 degrees. The most commonly used method is some form of thermoelectric couple, but a mercury thermometer may be employed.

The most important application of accurate surface temperature readings is that made before and after the release of vasoconstrictor tone for the purpose of determining the amount of vasoconstriction.

The use of the oscillometer is valuable if the information as to the state of the larger deep vessels is desired. The shape and height of the oscillogram determined at different levels of the same extremity and compared with readings at the same levels of the other extremity give a fairly accurate impression of the comparative

arterial inflow through the larger arteries. The location of occlusion in a large vessel may be demonstrated by recording the oscillation above and below the point. The extent of the collateral circulation cannot be estimated by this method. Used in conjunction with other tests it often is an aid in the diagnosis of organic disease.[8] It is subject to errors of technic as well as interpretation.

Histamine reactions are likewise of value when used in conjunction with other tests. The intensity of the response is said to follow the temperature gradient of an extremity when there is impairment of arterial inflow.[9] It fails to show evidence of arterial impairment if the collateral circulation is adequate for the nutritional needs of the tissues. In the presence of organic impairment of the larger arteries, a normal reaction indicates an adequate collateral circulation.

Chemical methods of investigation of the state of the circulation are sometimes employed. The oxygen tensions of the arterial and venous blood may be determined for comparison and are found to be nearly the same in arteriovenous aneurysms. In erythromelalgia also, the oxygen tension of the venous blood approaches that of the arteries.

Arteriography and the use of plethysmographs sometimes give important information, but are particularly useful in detailed studies of the circulation or for the determination of special conditions. Arteriography may locate the point of occlusion with accuracy, as well as demonstrate the extent of collateral circulation. It is of importance often in the location of arteriovenous communications. It makes it possible to differentiate the two main types of arterial occlusion.

The measurement of vascular tone can be used both for the determination of structural disease and for its differentiation from vasospastic disorders. Temperature readings of the skin surface before and after the release of vasoconstrictor impulses furnish a criterion for the test. Vasodilation may be produced by several methods in the clinical study of vascular diseases. These are: 1. Increased internal heat production. 2. Increased environmental temperature applied locally or generally. Temporary interruption of the vasoconstrictor pathway. There are several ways in which each of the general effects may be secured.[10] The details are well known. Scott and Morton[11] have established the fact that complete vasodilation will result in a temperature of 30.5°C. to 31.5°C. of the toes if the environmental temperature is at 20°C. On the basis of peripheral nerve block with local anesthesia they were able to divide circulatory syndromes into three main groups: 1. Occlusion alone. 2. Spasm alone. 3. Mixed spasm and occlusion.

Similar results can be obtained by other methods for the release of vascular tone: increased internal heat production by the induction of fever or the various methods for studying the effect of increased environmental temperature, either general or local. In the attempt to maintain proper heat elimination both vasodilation and sweating occur. The degree of vasodilation possible can be measured by means of skin temperature observations, properly controlled, or by a plethysmograph. Conclusions can be drawn as to the state of the circulation, as with nerve block. In the case of functional disorders the vasodilation is maximum. Exposure to cold either general or local is important for the study of the vasomotor disorders. The symptoms of vasodilator disorders not associated with impaired arterial circulation are improved if exposed to moderate cold. Temperatures of 16° to 18°C. are most effective if employed locally. Pain is increased with organic disease even when the superficial vessels are dilated. The same degree of cold is most effective in inducing the Raynaud paroxysm. Lower degrees are usually followed by reactive vasodilation.

By the appropriate application of these methods of diagnosis the presence or absence of organic arterial disease can be determined. The differential diagnosis as to the specific type of disease is more difficult and occasionally is impossible.

The sudden arterial occlusions can be usually identified by the abruptness and severity of the onset of symptoms. Only occasionally is pain absent in embolism. In the chronic arterial occlusions, the age and sex of the patient are important.

The incidence of thromboangiitis obliterans in women is so small that it scarcely needs to be considered. Silbert[12] found only two cases in a total of 2,000 and admits only a total of nine in the literature. Race can no longer be considered

a deciding factor, and while the majority of cases are heavy cigarette smokers, tobacco apparently is not always important.

It seems reasonably safe to conclude that arterial occlusion in individuals below the arteriosclerotic age, in the absence of diabetes, is usually thromboangiitis obliterans. This is particularly true if the larger medium sized vessels are involved. Frost bite, specific and non-specific types of endarteritis must be considered if the small vessels only are involved. In the older age groups the differentiation from arteriosclerosis obliterans becomes more difficult. In fact, both diseases may exist at the same time. Demonstration of calcification of the vessel walls by x-ray occurs so frequently that little or no importance can be attached to it from a diagnostic standpoint except when occlusion without calcification exists. The presence of phlebitis with arterial disease is evidence for thromboangiitis obliterans. The absence of vein involvement does not exclude it. The differential diagnosis then often becomes a matter of clinical judgment.

Confusion of thromboangiitis obliterans with Raynaud's disease is not uncommon. The reason is that with the former, early in the course of the disease, local vessel spasms occur which simulate that of Raynaud's disease in that they are the direct result of exposure to cold.

Thromboangiitis obliterans can easily be confused with vascular reactions of specific types including frost bite, electrical discharges, chemical and bacterial injury. Acute arteritis has been reported during the course of many acute infectious diseases and even in association with gout.[13] Tuberculous arteritis of the extremities is exceedingly rare, as is syphilis which so commonly involves the visceral vessels.

Functional disorders of the vasospastic type are exceedingly common if the minor variants of this group are considered. Cold moist hands and feet are associated with all types of neurosis regardless of cause. Autonomic instability in neurocirculatory asthenia, gastrointestinal neurosis and in the typical anxiety variety is almost invariably associated with vasoconstrictor phenomena involving the arterioles of the hands and feet. In some of these there is an associated color change which suggests the acrocyanosis type of disorder. In others there seems to be a resemblance to the Raynaud type of syndrome. They cannot be classed in either group, nor can they be sharply defined.

Typical idiopathic Raynaud's disease is rare. Its confusion with thromboangiitis obliterans has been mentioned. Errors in diagnosis have been and are frequent. The disorder should be looked upon as a syndrome occurring in a number of definite clinical entities as well as of the typical idiopathic type. Scleroderma, paroxysmal hemoglobinuria, arthritis, tuberculosis and many other diseases have been found in association. The diagnosis is dependent upon the occurrence of the typical paroxysm coming on in intermittent attacks with discoloration of the hands or feet usually on exposure to cold, although emotional disturbances frequently precipitate the paroxysm. In addition, the following criteria have been suggested.[14] 1. Symmetrical bilateral involvement. 2. Predilection of the disease for females. 3. Absence of clinical evidence of arterial occlusion. 4. Impairment of tissue integrity is limited to the skin. 5. Absence of organic disease to which the vasomotor changes might be secondary. 6. Two years should be the minimum period of duration of the disease for diagnosis.

Angiospasms in the peripheral vessels have been noted in many disorders of the central nervous system, as well as following injuries in which the nerve trunks have been involved, and even without evident nerve lesion. Cervical rib has occasionally been the cause. These secondary vascular spasms usually can be precipiated by exposure to cold.

Acrocyanosis is a purely functional disorder occurring usually in females, occasionally in males soon after puberty, in neurocirculatory asthenia, or after severe illness. It is characterized by cold moist hands of a bluish red color from a little above the wrists and increasing somewhat in intensity distally. They usually appear to be somewhat puffy. The patient is often not conscious of coldness, but complains of the appearance. Normal circulation and improvement of color can be demonstrated by any of the methods for the release of vascular tone although there may be some delay. No organic obstruction to the inflow of blood can be shown. Histamine is capable of releasing the spasm and in the area of injection a red flare appears

which has been interpreted as meaning that the spasm is arteriolar in location.

Erythromelalgia is a pure vasodilator disturbance and must be considered a primary disorder. It is exceedingly rare, and is characterized by the following features.[15] 1. Bilateral burning pain in the extremities often occurring intermittently in attacks. 2. Increase in temperature of the parts affected with redness, flushing, and congestion. 3. Induction or aggravation of symptoms by heat and friction. 4. Relief by rest, cold, and elevation. 5. Increased oxygen tension of the venous blood.

It is to be sharply differentiated from the burning parasthesias seen secondary to other conditions. The most common of these are polycythemia vera, obstructive vascular disease, both thromboangiitis obliterans and arteriosclerosis, diseases of the central nervous system, inflammatory diseases of the skin, or injury to the skin by physical or chemical trauma.

Summary: In summary it can be said that a careful history and general physical examination are extremely important in the evaluation of the condition of the peripheral circulation. Many peripheral phenomena occur as a result of general or systemic diseases.

A study of this kind in addition to the application of the proper objective methods, without unusual or special equipment, is sufficient to establish the diagnosis of organic or functional vascular disorders, and usually to make the differential diagnosis.

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CEREBRAL VASCULAR DISEASE—HYPERTENSIVE ENCEPHALOPATHY

EDWARD W. CANNADY, M. D.

EAST ST. LOUIS, ILL.

Recently there has been renewed interest in the sudden occurrence of transient cerebral phenomena in hypertensive patients. In the past the syndrome, which is known as hypertensive encephalopathy, pseudo-uremia, acute uremia, hypertensive cerebral attack and cerebral crisis, has not received the attention and study that its frequency and importance deserve.

The attack is usually preceded by prodromal symptoms, the most frequent of which are headache, nausea, vomiting, drowsiness, weakness, anorexia and restlessness. During this period the blood pressure rises above the previous high level. This initial phase is followed by the actual attack which may be characterized by coma, twitchings of muscle groups, or generalized convulsions. Consciousness is almost always lost completely during the severe attacks and coma persists for a period varying from a few minutes to many hours after the convulsions or twitchings have stopped. Coma frequently occurs in the absence of convulsions. The blood pressure is always elevated and the elevation is often extreme. During the period of convulsions the patient becomes incontinent. He is often cyanotic and appears to be near death.

The temperature is usually elevated and the pulse is rapid. Physical examination during coma or in the interval between convulsions may reveal various neurological manifestations. Hemiplegia may be present. A Babinski or other abnormal toe signs is often found. Neck rigidity accompanied by a Kernig sign is seen

Read as part of Symposium on Vascular Diseases, Eighty-sixth Annual Meeting, Illinois State Medical Society, Springfield, May 21, 1936.

in some cases. All of the positive neurological signs are of a very transient nature and may be present for a few minutes only. The retina usually presents definite abnormalities. These may vary from mere retinal arteriolar sclerosis to the advanced stage of hypertensive neuroretinopathy, which is characterized by arteriolar changes, hemorrhages, exudate, and papilledema.

The transient and fleeting character of the neurological signs, the inability to localize a lesion and the results of laboratory procedures usually establish the diagnosis. The cerebrospinal fluid pressure is often increased. There is no nitrogen retention in the uncomplicated case, the non-protein nitrogen or blood urea nitrogen being within normal limits. Renal function tests are seldom markedly impaired. The urine often contains a small amount of albumin.

A group of nine cases exhibiting the clinical features of this syndrome will be reported. Four were observed and treated on the medical wards of the Barnes Hospital, St. Louis, and five in the Peter Bent Brigham Hospital, Boston. Four recovered from the immediate attack. The remaining five dying during the seizure were submitted to complete pathological study.

This group of nine patients included five men and four women. The ages varied from 37 to 58 years, the average being 49. A family history of probable hypertension was obtained in six. Several of the clinical features are tabulated in Table 1.

All but one had been subject to headaches for many years. Seven complained of nocturia, one of epistaxis, and one of menorrhagia. The known period of hypertension varied from two months to fourteen years. Similar acute cerebral episodes had occurred in five on previous occasions.

A prodromal period characterized by headache, nausea, vomiting, drowsiness and confusion was reported in seven. This was soon followed by muscular twitchings in three and severe generalized convulsions in two. Death occurred suddenly in one patient after he had apparently recovered from a severe attack of headache, nausea and vomiting. In one patient the convulsions started in the left facial region, extended to the left arm, then to the left leg and finally involved the entire body in a severe generalized seizure. A febrile reaction was present in all but one, the maximum temperature being 104 degrees.

Sudden dyspnea was a prominent symptom in two patients. Puffiness of the eyelids was observed in two. Hypertensive neuroretinopathy was detected in five, arteriosclerotic retinopathy in two and retinal arteriolar sclerosis in the remaining two.

The blood pressure during the seizure varied from 178 to 270 mm. systolic and 112 to 150 mm. diastolic. The peripheral vessels were thickened in seven cases. There was moderate cardiac enlargement in most cases as detected by percussion but marked in one only. A few basal rales were heard in three instances.

The deep reflexes were hyperactive in three of the four recovered cases. One patient had a very transient hemiparesis. In one there was some question of a transient bilateral Gordan and in another a Kernig sign. Slight neck rigidity was observed in one.

Laboratory procedures were of invaluable assistance in making a diagnosis (Table 2) by excluding such conditions as uremia, syphilis and subarachnoid hemorrhage. The nonprotein nitrogen was determined in the four cases observed in the Barnes Hospital. It did not exceed 45 mg. %. The blood urea nitrogen was determined in the Peter Bent Brigham Hospital cases and exceeded 30 mg. % only once, and that in a patient who had been vomiting for several days and had taken practically no fluids during the same period. The two hour excretion of phenolsulphonphthalin determined in four cases varied between 15 and 75%. In the patient with low excretion marked mental confusion caused poor cooperation, making the determination unreliable. This same patient had a blood urea nitrogen of 28 mg. % and a urine specific gravity of 1.020. In two patients the specific gravity of the urine was 1.008 and 1.010 respectively but only one specimen was obtained from each. The lowest maximum specific gravity on regular voided urine specimens of the remaining seven patients was 1.017. This relatively high specific gravity without any attempt to obtain the optimum conditions of a concentration test indicates a good renal function. The ability to concentrate and the absence of nitrogen retention seem to exclude uremia. Albuminuria

was a constant feature but never exceeded a trace.

One patient had less than 3,900,000 red blood cells per cu. mm. This occurred in a woman who had been suffering from severe monorrhagia. A varying degree of leucocytosis was present in all during the acute episode. The maximum was 24,600 leucocytes per cu. mm. but only one exceeded 13,500 per cu. mm. The Wassermann reaction was negative in every case.

Lumbar puncture was done immediately after admission in seven cases. The cerebrospinal fluid pressure was elevated in four, the maximum being 550 mm. The pressure was 130 mm. in one and was not determined in the remaining two cases. In one of the latter cases marked cerebral edema was found at necropsy. No other spinal fluid abnormalities were detected.

The scope of this paper does not allow a detailed description of the pathological observations on the five cases examined after death (Table 3). This has been reported elsewhere.[1] Cerebral edema was prominent in two cases, both having a definite pressure cone. A lesser degree was noted in two of the remaining three brains. There was no evidence of cerebral hemmorrhage or thrombosis in any case. There was no increased congestion of the vessels on the surface of the brain, pallor of a varying degree being present in all. The cerebral arteries and arterioles were involved in a generalized sclerotic process but was marked in one instance only.

The hearts were enlarged in all five cases but the degree of hypertrophy was usually no more than would be expected in hypertension of considerable duration. The weight of the five hearts varied between 420 and 775 grams but exceeded 590 grams in one instance only. There was slight coronary artery sclerosis in every case but all vessels were patent and there was no evidence of old or recent infarction.

The gross appearance of the kidneys suggested a vascular type of nephritis. The surface was finely granular in most cases. The combined weight of both kidneys varied between 210 and 340 grams. The histological picture was that of an arteriolar and arteriosclerosis, the type of lesion usually being observed in "essential" hypertension. Arteriolar and glomerular necrosis and the minute hemorrhages described in "malignant" nephrosclerosis were seen in one case only. None showed evidence of a true glomerular nephritis.

This syndrome is not an entity that was unknown to the clinicians of the past century. In his discussion of cases with renal disease, Richard Bright[2] mentioned a patient who had convulsions with no unconsciousness. Bright was impressed by the unusual features of this case. The presence of consciousness suggests the absence of true uremia in this case but the lack of adequate function tests and blood pressure determinations makes it impossible to group it with the hypertensive cerebral attacks. Even in these coma usually occurs.

One of the earliest cases appearing in the American literature was that reported by Peabody.[3] Several convulsive seizures preceded death in his patient. The autopsy revealed no changes in the brain, other than an arteriosclerosis of the cerebral vessels. All vessels were patent. There were no areas of hemorrhage, degeneration or inflammation. Similar observations were made in the cerebral vessels of the cases included in this report.

Pal in 1905 reported the occurrence of these cases and compared them with the convulsions occurring in lead encephalopathy. A year later Vaquez and Nobecourt compared these attacks with those seen in eclampsia. In all three conditions hypertension is usually present.

Osler, in the first edition of his text-book referred to Peabody's case. In 1911 Osler[4] reported hypertensive patients he had observed with transient aphasias and paralysis. His cases were characterized by aphasia, sensory disturbances, motor paralysis and mental features such as confusion of thought and emotional upsets. He based the diagnosis on the existence of high tension and the slight or transient character of the attacks. Osler indicated that the prognosis of the immediate attack was good as many of his patients lived for years.

In 1914 Allbutt[5] made the statement that he doubted that such attacks occurred without a definite organic basis. He criticized the lack of autopsy examinations and called attention to the difficulty of finding old small thrombotic lesions in the brain. It is true that very few of the early reports included postmortem examinations and this is still true of many of the later reports in the English literature. This feature stimu-

lated the investigation which led to this report. The fact that very few patients die during the immediate attack probably accounted for the lack of adequate pathological studies.

A few years later Volhard[6] reported cases of "acute" and "chronic pseudo-uremia" and for the first time convincingly demonstrated that these cerebral episodes were not dependent on disturbed renal function. The acute type occurred in conditions where the hypertension was of relatively short duration, such as acute nephritis and eclampsia. This type was characterized by headache, vomiting, tachycardia, amaurosis, coma and convulsions. He attributed the symptoms in the acute type to cerebral edema. In chronic pseudo-uremia Volhard believed that the transient focal symptoms were caused by spasm of the corresponding cerebral vessels. The presenting symptoms of this group were transient aphasias, paralysis, mental confusion, convulsions or twitchings and unconsciousness. Autopsy examination of Volhard's cases revealed no focal lesions to account for the symptoms.

The edema occurred in his cases of acute pseudo-uremia and the pale bloodless brain in his chronic pseudo-uremia group. It was not possible to make such a distinct division in the five cases included in this report as both edema and vascular alterations were present in several of these brains.

Blackfan[7] in 1926, called attention to the cerebral manifestations of acute glomerular nephritis, characterized by vomiting, headache, visual disturbances, tachycardia, slowing of the respiratory rate, coma, convulsions and ultimate death in some cases. The brains of these patients weighed from 20 to 30% more than normal, the convolutions were flattened, the surface was firm and tense and at the base there was invariably found the "medullary cone." These cases were accompanied by an increase in blood pressure, which Blackfan thought was the result of the cerebral edema rather than the cause. These cases would be included in Volhard's acute pseudo-uremia group.

Blackfan's cases are not comparable to those reported in this paper, however, as his occurred in children with acute nephritis and undamaged arteries, while these observations were made in older individuals with the arterial changes that usually accompany hypertension.

In 1928 Oppenheimer and Fishberg[8] reported the occurrence of these attacks which they termed "hypertensive encephalopathy." Their report consisted of one case only, a boy of 19 who had repeated attacks of convulsions over a period of many months. All blood chemical determinations were within normal limits. This patient was still alive when the paper was published.

Grant[9] in 1932 mentioned the difficulty of differentiating some of these cases from brain tumors. He reported five such cases, two of them being submitted to craniotomy because of the mistaken diagnosis. No final pathological observations were given in his paper.

McAlpine[10] described several cases of "hypertensive cerebral attacks." He divided his cases into two groups; namely, those with and those without signs of cerebral edema. The former included patients under 40 and was characterized by sudden appearance of severe headache, nausea, vomiting, drowsiness, coma, hypertensive retinitis, increased cerebrospinal fluid pressure and albuminuria. Three cases comprised this group, one dying during the attack. The spinal fluid pressures varied from 180 to 280 mm. water. The second group, or those without signs of cerebral edema, consisted of three patients between the ages of 40 and 65. The presenting symptoms were headache, temporary aphasia, unconsciousness, convulsive seizures, no papilledema, normal spinal fluid pressure and an inconstant albuminuria.

Horace Evans[11] reported seven cases among 90 acute nephritics. He made no attempt to differentiate them into groups with and without cerebral edema as was done by McAlpine. Severe headache preceded the onset in every case. There was anemia of mild degree in all. Coma varied from slight stupor to marked insensibility. Vomiting occurred in seven; convulsions in six. Ophthalmoscopic examination revealed hypertensive neuroretinopathy in four. In few the renal function tests disclosed some impairment, the blood urea varying from 30 mg. to 87 mg. The cerebrospinal fluid pressure was increased in seven.

The diagnosis of hypertensive encephalopathy occasionally presents some difficulty and frequently is made only after excluding all other

possible lesions. After a thorough consideration of clinical, laboratory and pathological features, little doubt remained that the nine cases included in this report had suffered from a hypertensive cerebral attack.

The relative absence of nitrogen retention and the high urine specific gravity indicated that true uremia could not have been the cause of death. The duration of the attack was much too short for that usually occurring in uremia. These cases have often been termed "acute uremia" in the past but the inability to demonstrate marked renal impairment makes such a diagnosis untenable and the term is misleading. The kidney changes of these cases were those usually found in "essential" hypertension, a condition that terminates in cardiac failure or cerebral hemorrhage much more frequently than in uremia.

Various intracranial lesions may simulate attacks of hypertensive encephalopathy. Cerebral hemorrhage or thrombosis often produces a similar clinical picture. The manifestations of hypertensive encephalopathy are of a very transient nature, seldom lasting over a period of a few days, while those of cerebral hemorrhage or thrombosis are of longer duration and usually leave residual signs. Physical examination in these patients failed to reveal any localizing signs suggesting hemorrhage into the brain. Anatomical examination did not disclose any gross or histological evidence of hemorrhagic or thrombotic processes.

Subarachnoid hemorrhage was readily eliminated by the clear spinal fluid. The sudden onset, high blood pressure, urinary changes and the absence of localizing signs suggested that the episode was not due to a cerebral neoplasm. This deduction was confirmed at autopsy in the cases dying during the attack.

It would be difficult to attribute the features of the attack to any cardiac or pulmonary lesion. The heart was enlarged in all cases but markedly in only one. The only anatomical findings in the five hearts examined were those usually accompanying severe hypertension. Pneumonia, pulmonary infarct or edema were easily excluded by the appearance of the patients and observations made during their physical examination and course before death. At necropsy several small bronchopneumonic areas were noted but these were not greater than usually found in patients dying after many hours of stupor. No other pulmonary lesions were noted.

The treatment of the hypertensive cerebral attack is of great importance and the episode should be considered as an emergency. It is often possible to prevent the convulsive and comatose stages if the prodromal symptoms are recognized and proper treatment given immediately. Since the attacks are due to a cerebral circulatory disturbance, all therapy should be directed toward its correction.

The measures most successful in combating cerebral edema are venesection, lumbar puncture and hypertonic fluids. These measures were used in most of the cases observed. In one patient having generalized convulsions, a venesection of 100 cc. was followed by 20 cc. of 50% glucose intravenously and 5 cc. of 25% magnesium sulphate intramuscularly. No further convulsive seizures occurred.

In the usual case approximately 500 cc. of blood should be removed rapidly. Evans[11] suggests 400 cc. for the child with acute nephritis and 600 cc. for the adult. In those cases with anemia it may be unwise to do a venesection. This was thought to be true in one patient in this series who had been suffering from a menorrhagia.

The severe headache and other symptoms as well as convulsions accompanying the attack are often relieved by lumbar puncture. Most writers recommend its use but a few fear the formation of a medullary cone after removal of fluid from a patient having an edematous brain. The fluid should be removed slowly. It is well to determine the exact pressure during the procedure, removing no fluid after the pressure has returned to normal levels.

Hypertonic glucose and magnesium sulphate are the fluids most often used in an attempt to reduce the cerebral edema. Approximately 20 to 50 cc. of 50% glucose is given intravenously. Magnesium sulphate may be administered intravenously, intramuscularly, or rectally. After stupor or convulsions have appeared the two former methods are most frequently used. In adults the usual amount is 20 cc. of 10% solution. This should be injected very slowly. Fifteen cc. of 20% solution is often injected intramuscularly.

When given rectally 30 to 90 cc. of 50% solution is injected every four hours.

Morphine is often a very helpful drug and one patient in this series was quieted soon after its administration. Other drugs have been used, the majority of these belonging to the sedative and vasodilator groups. Several writers have suggested the use of erythrol tetranitrate or amyl nitrite. These were not used in any of the cases reported in this paper. Fishberg[12] states that he has never seen any good results following the use of amyl nitrite and nitroglycerine in hypertensive encephalopathy. Paraldehyde and chloral hydrate have been advocated in the past.

TABLE 1

Case	Age	Sex	Prodromal Period	Convulsions	Temp.	Duration Hours	Fundi	B.P.
1 BH	48	M	Drowsy	Yes	98	36	ASR	220/130
2 BH	42	F	Nausea Vomiting	No	101.3	72	HNR	220/130
3 BH	51	F	Headache	No	101	24	RAS	190/112
4 BH	58	M	No	Yes	100.4	48	ASR	220/140
1 PBBH	55	M	Nausea Vomiting Headache	Twitchings	103	96	RAS	178/120
2 PBBH	49	M	No	No	?	0	HNR	220/140
3 PBBH	55	M	Headache Vomiting	Twitchings	103	72	HNR	214/150
4 PBBH	37	F	Confusion	No	104	100	HNR	220/120
5 PBBH	49	F	Vomiting	Twitchings	100	36	HNR	270/140

ASR—Arteriosclerotic retinopathy.
HNR—Hypertensive neuroretinopathy.
RAS—Retinal arteriolar sclerosis.

TABLE 2

Case	NPN or Urea N	PSP	SP. GR.	Albumin	RBC	WBC	L. P. Pressure
1 BH	38 (NPN)	—	1.010	T	4.7	10,000	No Pres. Rdg.
2 BH	38 (NPN)	55	1.024	T	2.3	11,500	180
3 BH	33 (NPN)	—	1.008	VFT	4.9	10,200	—
4 BH	45 (NPN)	—	1.020	T	5.1	12,600	—
1 PBBH	15 (UN)	40	1.022	VFT	4.1	11,400	130
2 PBBH	.....	75	1.022	T	4.9	9,000	230
3 PBBH	35 (UN) Vomiting	—	1.020	ST	4.7	13,500	Neg. Fluid
4 PBBH	28 (UN)	15	1.020	T	3.9	13,000	550
5 PBBH	23 (UN)	—	1.017	LT	4.7	24,600	230

VFT—Very faint trace of albumin.
ST—Slight trace of albumin.
T—Trace of albumin.
LT—Large trace of albumin.
PSP—Two hour phenolsulphonphthalein excretion.

TABLE 3

Case	Brain Wt. (Gms.)	Cerebral Edema	Cerebral Arteriolar Sclerosis	Heart Wt. (Gms.)	Kidney Wt. Right	Kidney Wt. Left
PBBH 1	1520	Moderate	Moderate	590	110	110
PBBH 2	1400	Marked	Moderate	450	170	170
PBBH 3	1640	Marked	Moderate	420	125	140
PBEH 4	1300	None	Moderate	520	40	170
PBBH 5	?	Moderate	Marked	775	110	155

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THE SURGICAL MANAGEMENT OF PERIPHERAL VASCULAR DISEASES

LEO M. ZIMMERMAN, M. D.

CHICAGO

From the Peripheral Circulatory Clinic, Dept. of Surgery, Northwestern University Medical School, Chicago, Illinois

From the remarks of those who have preceded me in this symposium, it is evident that diseases of the peripheral vascular system are of far-reaching significance, affecting all parts of the body and embracing all of the fields in medicine. The aspects of the problem vary in the different medical departments. The surgeon is concerned

Read as part of Symposium on Vascular Diseases, Illinois State Medical Society, Eighty-sixth Annual Meeting, Springfield, May 21, 1936.

principally, though not exclusively, with disturbances in circulation of the extremities, and deals with diseases of the veins as well as with those of the arteries. Inasmuch as the former are responsible for more widespread morbidity, and at least as frequent mortality as the latter, diseases of both of these components of the circulatory system will be briefly presented in this discussion.

Diseases of the Veins. Diseases of the peripheral veins occur predominantly in the lower extremities, and may be grouped in the simple classification shown in the accompanying table.

TABLE 1. DISEASES OF THE VEINS

I. **Non-inflammatory Conditions**
  1. Varicose Veins
  2. Abnormal Arteriovenous Communications
    A. Congenital
    B. Acquired

II. **Vein Thromboses and Inflammations**
  1. Phlebitis of varicose veins
    A. Ascending type
    B. Localized form
  2. Phlebitis of non-varicose superfical veins
    A. Ascending
    B. Localized
    C. Phlebitis Migrans
    D. Phlebitis of Buerger's Disease
  3. Deep vein thromboses and inflammations
    A. Suppurative iliac thrombophlebitis
    B. Non-suppurative thrombophlebitis (Phlegmasia alba dolens)
    C. Bland thromboses

Varicose veins have received sufficient attention in the recent literature to require little additional comment. Suffice it to say that the modern management, consisting of high ligation and sclerosing injection, has found almost universal acceptance, and many of the earlier divergences of opinion have been reconciled. The only change in our approach to the varicose vein problem during the past few years has been a strengthening of our convictions as to the indispensability of saphenous trunk ligations in cases in which the parent vessel is involved. We are doing saphenous vein ligations in an increasingly higher percentage of our cases, and are more and more convinced of the necessity of placing the ligature above the uppermost tributary, as near as possible to the confluence of the saphenous with the femoral vein. To further prevent restoration of continuity following ligation, we are now injecting sclerosing agents into the peripheral segment at the time of ligation, in order to obliterate the most proximal portion of the vessel. As to the choice of sclerosing agent, the solutions of soaps of the fatty acids, of which sodium morrhuate is the prototype, have most closely approximated the ideal, and are finding the widest application. Abnormal arteriovenous communications are relatively uncommon. They may be congenital or traumatic and their treatment is surgical.

The inflammations of the veins of the lower extremities may be divided into the three subgroups shown in the table, as was first suggested by Homans.[1] Because of the stasis, anoxemia and degenerative changes to which they are exposed, varicose veins become infected far more frequently than do normal superficial veins. Most patients with varicose veins of any material degree eventually suffer from inflammation of their varices. We have repeatedly expressed the view[2] that all of the complications of varicose veins are inflammatory in origin; that a direct sequence of events can be traced from the varicophlebitis to the end-stages of eczema and ulceration; and that this tendency toward inflammation constitutes the greatest indication for the early eradication of varicose veins. Treatment for this type of phlebitis, as well as for its sequelae, is almost invariably ambulant, and consists essentially of supportive bandaging, preferably with Unna's paste boots, followed by active obliteration of the varicosities. We consider the presence of active phlebitis a contraindication to ligation or injection, and advise an adequate period of waiting after the complete subsidence of the inflammatory manifestations before instituting such therapeutic measures.

Non-varicose superficial veins may also be the seat of phlebitis which closely resembles that described above, both in its clinical manifestations and in its sequelae. It occurs, however, much less frequently, and is particularly prone to develop in limbs which have previously harbored deep vein infections. Treatment is as described above, although periodic recurrences may necessitate supervision and attention for the rest of the patient's life. Special forms of superficial vein phlebitis are described as phlebitis migrans and the phlebitis of Buerger's disease. The latter will be discussed under the heading of arterial disease.

The most serious vein diseases of the lower extremity are those affecting the deep veins. These may be subdivided into suppurative, nonsuppurative and bland vein occlusions. Suppura-

tive inflammation of the iliac and femoral veins may follow septic abortion or delivery, and is characterized by intense sepsis and toxemia which completely overshadow any local circulatory disturbances, and which usually lead to early death from multiple septic emboli and pyemia. Treatment is heroic and rarely effective.

Non-suppurative thrombophlebitis of the deep veins is the ordinary postoperative or puerperal form which has long been termed phlegmasia alba dolens, and is characterized by a febrile course and edema of the extremity. The edema may disappear, or may persist indefinitely. These patients, as mentioned, are also subject to repeated attacks of superficial vein phlebitis, with their sequelae of indurations, eczemas and ulcers, and which may eventually progress to the development of a true elephantiasis. Treatment during the acute stage is directed toward the early mobilization of the edema fluid by means of elevation, diuretics and x-ray. Subsequent care consists in supportive bandaging and constant care and supervision, as indicated above, for the recurring superficial inflammatory phenomena.

Bland thromboses occur after operation or delivery, produce no symptoms by which their presence can be recognized, and give rise to the massive pulmonary emboli which are so often rapidly fatal. Since their presence cannot, as a rule, be detected, treatment is not indicated before embolism occurs, and is too late after the embolus has struck. Prophylaxis is of fundamental importance, and is directed toward avoiding slowing of the circulation and fall in blood pressure by exercise, stimulants and early mobilization of surgical patients.

Diseases of the Peripheral Arteries. Patients presenting themselves for treatment because of peripheral arterial disease comprise, essentially, three groups which are, in order of their frequency, arteriosclerosis, thromboangiitis obliterans, and the vasospastic lesions which are usually grouped under the name of Raynaud's disease. Arteriosclerosis is essentially an organic process, unattended by marked vascular spasm except in the acute embolic or thrombotic occlusions. In the early stages of Buerger's disease, occlusive and spastic features are co-existent; later, the changes are entirely organic. Raynaud's disease is primarily a functional disturbance, although in the terminal stages, when trophic disorders or scleroderma supervene, actual vascular tissue changes can be demonstrated. In the selection of therapeutic measures for the various stages of these disorders it is necessary to keep in mind the nature of the disturbance and the objectives toward which treatment is directed. Modern management, in general, stresses early recognition and conservative treatment, and is effective in saving many limbs which, in former years, would have been needlessly sacrificed.

Arteriosclerosis. Arteriosclerosis of the peripheral arteries is a degenerative disease of advancing age, characterized by diffuse narrowing and inelasticity of the vessels, resulting in ischemia, which affects chiefly the lower extremities. The process progresses slowly, although sudden thrombotic occlusions may be induced by trauma, exposure or infection. Collateral vascular channels are sparse because of the diffuseness of the lesion and the impaired reparative powers of these aging patients. The slow progression of the disease permits adaptation of the tissues to the diminished arterial inflow, and the fact that the patients are beyond the age of greatest activity makes it easier for them to limit their circulatory needs to the capacity of their vessels. If they can be tided over the crises of acute ischemia, severe pain, trophic ulceration, infection and impending or beginning gangrene, circulatory balance may again be restored. If not, spreading infection or massive gangrene may leave no alternative to amputation.

Since this is a degenerative disease, closely allied to the growing-old process, causal therapy is out of the question. Early recognition, however, and education of the patient to avoid exposure, trauma and infection are of primary importance. Exposure to cold is particularly dangerous. Cold baths should be interdicted. During winter months, soft woolen hose, wool-lined shoes, and warm bed socks should be worn. Ill-fitting shoes causing pressure or trauma should be avoided. Ill-advised or carelessly performed minor surgical operations such as trimming of calluses or corns, removal of toe nails, or application of irritating medicaments must be studiously shunned. The skin of the feet should be carefully bathed daily, dried gently, and anointed with lanolin to prevent scaling

and cracking. Concomitant ringworm infection, if present, should receive appropriate treatment. These measures are of utmost importance in preventing infection and gangrene, and constitute the first requirement in the management of all forms of arterial disease of the extremities.

Further measures, during the uncomplicated stages, are directed toward limiting activity and improving the circulation. Rest is essential. Smoking should be prohibited because of its tendency to produce peripheral vasoconstriction. Heat is of value in producing passive dilatation of the vessels. An incandescent bulb-heated cradle or baker may be used, if adequate precautions against burning are taken. Diathermy to the legs is also effective. Vascular exercises, as devised by Buerger and Allen should be insisted upon. Vasodilators such as theobromine sodium salicylate, in doses of 30 to 40 grains daily, are given. With these simple measures, the circulation can be improved sufficiently to relieve symptoms and increase the range of activity in the majority of patients.

In the occasional case in which the measures described are inadequate, and those in which infection, ulceration or beginning gangrene are present, more intensive treatment is required. Bed-rest is essential. Hot boric compresses or Dakinization of the infection may be necessary. Intravenous hypertonic salt solution, 3 to 5%, in quantities increasing from 150 to 300 cc. often aids materially. Alternate positive and negative pressure, if suitable apparatus is available, affords a genuine advance in the handling of this type of patient. Treatments should be given once or twice daily, for a minimum period of one hour each. If pain is severe, and particularly, if it interferes with adequate dressing and care of open lesions, peripheral nerve block, as recommended by Smithwick and White[3] is a useful adjunct. This has the further advantage of promoting maximal vasodilatation in the area supplied by the injected nerve. Localized gangrene is allowed to demarcate, and the affected tissues are removed. More extensive gangrene calls for major amputation, at the site of election or through the knee. Spreading cellulitis or lymphangitis necessitates thigh amputation of the guillotine type.

Diabetes. When complicated by diabetes, the picture differs from banal arteriosclerosis in several important characteristics. The general health of such patients is poorer; there is more advanced cardiac and cerebral vascular damage, as a rule; and they have a notorious predisposition to rapidly spreading infections. Treatment must be earlier and more intensive. The control of the diabetes is imperative. Ascending lymphangitis or cellulitis call for early and radical amputation, or death from sepsis may supervene.

Thromboangiitis obliterans. Thromboangiitis obliterans is an inflammatory disease of unknown etiology, occurring in young males between the ages of 20 and 45, and affecting the larger arteries and veins of the extremities. The legs are more often affected than the arms, and, occasionally, visceral vessels may be involved. The essential lesion is an obliterative endarteritis, upon which is superimposed thrombotic occlusion. Its distribution is patchy and irregular; the remaining vessels retain their distensibility. This capacity for dilating, often loosely spoken of as spasm, is lost later in the course of the disease. Because of the youth of the patients and the distensibility of the uninvolved vessels, exuberant development of collateral arterial channels is the rule. The disease is usually self-limited, and if the growth of collateral circulation can be made to keep pace with occlusive processes and the patient tided over periods of acute ischemia, ultimate recovery with useful limbs should be the rule.

The cause of the disease is unknown. Causal therapy, therefore, except for the eradication of infectious foci and the use of foreign proteins, is not feasible. Tobacco is at least an important aggravating factor and complete cessation of its use is a sine qua non to successful treatment. The general prophylactic and hygienic measures described for arteriosclerosis are equally important in Buerger's disease, and in the stage of intermittent claudication may be sufficient. The selection of further treatment depends upon the distensibility of the uninvolved vessels, or the vasospastic component present. If a material degree of spasm is present, fever therapy is an effective measure. We use intravenous injections of typhoid vaccine, starting with doses of 15 to 25 million, and increasing until an adequate febrile reaction is obtained. If the vasomotor component is low, hypertonic salt solution

injections are used, as described above. This more or less empiric form of therapy is credited with excellent results in some of the largest series of cases reported[4, 5] and in our hands, has been very useful.

When rest pain and trophic lesions are present, recumbent treatment is essential. Opiates must be avoided because their prolonged administration readily induces addiction. The simple expedient of finding the angle of maximal circulatory efficiency and maintaining the patient in that position, often suffices to overcome severe and demoralizing nocturnal pain. Alternating positive and negative pressure may be used, although we have found it of less value in Buerger's disease than in arteriosclerosis. Sensory nerve block or section will relieve the agonizing distress, facilitate care of the open lesions and promote healing. Amputation should not be done because of pain. Localized areas of gangrene should be treated conservatively until demarcation occurs. Major amputation is justified only in cases of massive gangrene, spreading infection, or if tissue destruction is too extensive to leave a useful member. This recognition of defeat should be necessary in not more than 5 to 10% of cases.

The role of sympathetic ganglionectomy in the treatment of thromboangiitis obliterans is still undecided. Its usefulness is limited to the early cases, in which a high vasospastic component is present. In this stage, the conservative measures are also effective. In the few instances in which we have used this procedure, the results have been satisfactory, but we do not as yet give to this form of management more than a minor place in the therapy of thromboangiitis obliterans.

Raynaud's Disease. A series of vascular disorders of the extremities in which vasospasm constitutes the principal disturbance is grouped under the name of Raynaud's disease. This affection more often involves the upper extremities, is frequently symmetrical, and characteristically occurs in young women. At first, there are attacks of anemia, cyanosis, and numbness of the affected regions on exposure to cold or accompanying emotional disturbances. Later, ischemia may be continuous and trophic changes of a relatively mild degree occur. At this stage, organic changes have usually developed on the basis of the functional derangement. Ultimately, scleroderma of the exposed parts of the body may supervene.

Many of the Raynaud's syndromes are secondary to other organic disturbances and respond to removal of the causative factor. In uncomplicated cases, avoidance of exposure, administration of bromides and mild fever treatment give relief. This group of patients responds most favorably following cervicodorsal or lumbar sympathetic ganglionectomy. Although the spastic reflex is local rather than central in origin, (Lewis), and in spite of the fact that the late results are imperfect, this form of therapy has, in general, been found gratifying. In the late stages complicated by scleroderma, the changes are usually irreversible, but further progression of the disease may be prevented by the attack on the sympathetic ganglia.

Summary. Peripheral circulatory disturbances may be of venous as well as of arterial origin. Vein diseases include varicosities, abnormal arteriovenous communications, and the various types of phlebitis and thrombosis. Varicose veins are particularly susceptible to the development of phlebitis, which may be the precursor to the late complications, eczema, ulceration and elephantiasis. Massive embolism is not a frequent sequel. Treatment consists of support by means of Unna's paste boots, followed by ligation and injection of the veins. Nonvaricose superficial veins are less often affected. They become inflamed commonly, as a sequel to deep vein thrombophlebitis. Migrating phlebitis of the superficial veins is part of the picture of Buerger's disease. The deep veins may be the seat of suppurative phlebitis, with early sepsis, pyemia and death; of postoperative or puerperal thrombophlebitis, with its sequelae of persisting edema, attacks of superficial phlebitis, and obstinate ulceration; and mild, bland thromboses, the presence of which is first announced by sudden massive, and often fatal, pulmonary embolism.

The common arterial lesions are arteriosclerosis, with or without diabetes, thromboangiitis obliterans and Raynaud's disease. Treatment is essentially conservative, and consists of general prophylactic and hygienic measures, rest with graded vascular exercise, and the avoidance of tobacco. Heat and diathermy are of value. If

material vasospasm accompanies the lesion, foreign protein therapy aids materially in the establishment of collateral circulation. In the absence of a spastic component, intravenous hypertonic salt solution injections improve the circulation and promote healing of open lesions. Alternating positive and negative pressure often tides the patient over acute crises of ischemia, until circulatory balance is restored. Severe pain can be relieved by blocking the peripheral sensory nerves, and should not constitute an indication for major amputation. Localized areas of gangrene are allowed to separate spontaneously. Major amputation may become necessary because of massive gangrene or spreading infection. In the presence of diabetes, early radical amputation may be necessary to prevent septic death.

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DISCUSSION ON SYMPOSIUM ON VASCULAR DISEASES

Dr. Ford K. Hick, Chicago: My discussion will be confined to certain aspects of treatment. I know of no field in which attention to detail is so well rewarded as in the management of cardiac and circulatory disturbances. Every patient differs from the rest; rules are of little value.

In Dr. Bell's paper I was impressed by the word tranquillity as constituting part of the treatment. Many of these hypertensive patients insist upon knowing the blood pressure, though they are unable to evaluate its importance and are scared to death of cerebral accidents, sudden death and what not. I saw a patient who was called upon to act as pallbearer for a friend who had died suddenly. About two o'clock the day of the funeral he developed his first coronary occlusion; his blood pressure had risen from a safe level to 265 systolic, 145 diastolic at the time of the attack. I tell many of these patients to pay no attention to their arterial tension, and occasionally tell them of some of the patients in the clinic who have survived extreme hypertension featured by cerebral and coronary accidents for many years and are still alive.

With reference to Dr. Scupham's paper, in the University of Illinois I examine some of Dr. deTakat's clinic patients to find out what else they have besides the circulatory disease. I have not seen a case in that group with a hemoglobin above 75%. Most of them are suffering from malnutrition, many have been in pain for months and have lost sleep from that cause. The management of these problems is important. In the management of diabetic gangrene, the attitude of my chief, Dr. Keeton, is conservative. One of the stunts he likes to use is bed rest, with the foot encased in an air-conditioned chamber. The patient lies in bed with both feet under a wooden box, with the temperature around 100° F. without direct exposure to light bulbs. It seems to be a signal aid in helping these patients combat minor infections at the site of gangrene.

I appreciate particularly also the attitude expressed by Dr. Zimmerman—universal conservatism, uniform emphasis on things to do for the patient outside his arterial situation. I think that attitude on the part of the surgeon is advanced over the practice of ten years ago.

Dr. C. B. Ripley, Galesburg: I feel that the papers of this symposium are the most valuable I have heard for a long time. I hope that those who are here will watch for the publication of Dr. Zimmerman's paper which he did not have time to finish. His talk on the general condition and general handling of the patient was of utmost importance.

I want to mention two or three things only.

One is the work on varicose veins being done so largely today. I am glad to see that he favors the high ligation of such veins, before injection, to avoid the danger of emboli.

Another! We have, as you all know, infective emboli in showers, which occur frequently and may not cause any trouble. But the really dangerous thrombi are those so-called benign, mild or aseptic affairs, not closely attached to the vessel walls, which may be easily dislodged. It is those that cause shock and sometimes immediate death.

As surgeons and general practitioners we are most interested in postoperative vein complications occurring more and more frequently following clean operations. The French and Germans report a great increase in such occurrences. There has been a lot of argument about why they occur, and especially over why they most always occur on the left side, although the operations, as you know, are mostly on the right side of the abdominal cavity.

I think that interference with circulation, rest in bed, and tight bandaging are generally recognized as very important causative factors in these conditions. The blood volume is down because of hemorrhage and restricted intake of fluids and loss of fluids. The bleeding and coagulation times often are found to be shortened. This may not be of immediate importance but it should be remembered. The long latent period of ten

days average after operation before thrombi occur is a favorite argument of the surgeon against their having any connection with the operative work.

There has been much published in the last ten years about these pulmonary emboli and operations to save lives. If there are showers of small emboli they most all get well and surgery has no place in the treatment. But there has been a lot published about the Trendelenburg operation for massive emboli and the clinics in the large hospitals seem to feel that the house surgeon is responsible for a death from pulmonary embolus if he fails to recognize the condition and misses the chance to operate. In these cases that do survive such surgery, it is a question whether conservative treatment would not have been as successful. The most constructive thing we can do is to try to prevent such things occurring. I think we should avoid constricting bandages, and we should use carbon dioxide more frequently to stimulate deeper breathing immediately following such surgery as laparotomy. Ten days or twelve days in bed is too long. We should arrange early mobilization of our surgical patients, even within two or three days after laparotomy. Or if the patient is too debilitated for that, the bed exercises should be used as described by Dr. Zimmerman.

Dr. George Woodruff, Joliet: I have not had the opportunity of reading the various papers presented. My remarks are based on the short abstracts in the journal, with additional thoughts which appear pertinent to the subject. The subject is extremely broad and deep, with rather indefinite limits, and I do not hope to have my discussion complete or scientific.

Some of the commoner conditions about the nose, throat or ear in which vascular disease may be a factor, either etiologically or as a complication, are nasal hemorrhage and congestion, vertigo, tinnitus and deafness in the vestibulo-auditory apparatus, hemorrhage in the pharynx and paresis or paralysis in the larynx. In the eye there are several serious manifestations of vascular diseases, which will be touched on later.

I have seen sudden severe nasal hemorrhage in a middle-aged woman come on without previous bleeding. When I arrived the patient was unconscious on the floor. Luckily the hemorrhage had stopped, and has not recurred in the past five years. Undoubtedly many nasal hemorrhages are partially due to vascular abnormalities—weakened vessel walls, often associated with increased pressure in such a vessel. Of course we recognize that the common nose bleed from Kieselbach's area at the anterior and lower part of the septum, is due mostly to purely local conditions, but there is a large group of cases in which vascular disease is an important factor. In some of the cases the nose bleed may represent a more serious vascular lesion. I believe that some headaches which patients ascribe to sinusitis are due to that mysterious condition called hypertension and possibly to other vascular diseases. Congestion of the nasal mucosa and perhaps even polypi, I think in some cases are due to vascular disease.

Dr Shapiro has covered the field with regard to vascular disturbances affecting the two important functions of the ear. He has pointed out that in diagnosis, chronic ear infection and brain tumors as well as toxemia should not be overlooked. It occurs to me that trauma at times may also confuse the picture. Recently I saw such a case in which tinnitus and deafness with recurring attacks of vertigo followed the explosion of a firecracker near the patient's ear. As time went on, the case at different times seemed to be in part based on trauma, tubal catarrh and toxemia, and a vascular factor was a possibility. He finally recovered following treatment to a diseased ethmoid and tonsillectomy, followed by the use of an autogenous vaccine. In some cases there may be more than one cause at work. To a considerable extent our treatment of these cases must still be empiric. Dr. Shapiro and others doing similar work will gradually give us a more scientific basis for therapy.

In these cases the question of prevention looms large. I believe in persons of middle age the sudden attack of vertigo often occurring during the night, or manifest on arising in the morning, followed by what the patient calls a feeling of dizziness with attacks of vertigo tapering off to a gradual return to normal or nearly normal feeling in several weeks, is a warning which should not be ignored. The vascular system shoult be thoroughly tested out and put under the proper control, living and eating habits must be regulated and sources of toxemia eliminated. Of course these cases, if possible, should have a thorough examination of the vestibular apparatus and the hearing also, and in some cases this should be done repeatedly.

The effects of vascular disease are not uncommonly seen in the larynx. An abductor paralysis of the larynx on the left side is most often due to aneurysm of the aorta. In some patients past middle age the state of the vascular apparatus is very important when the question of tonsillectomy is under discussion. It may at times be an indication for fractional electrocoagulation rather than the usual surgical tonsillectomy.

Dr. Chapman has gone thoroughly into the manifestations of vascular disease in the eye, and has described the serious consequences of those sudden vascular accidents such as embolism of the central retinal artery, thrombosis of the central retinal veins and retinal hemorrhage.

Of late it has been quite a frequent experience to see cases of transient painless edema of the eyelids which, for want of a better term, we call angioneurotic edema. Whether this should properly be called a vascular disease or an allergic disease I do not know. Ingestion of fair sized doses of calcium seems to be of some benefit in controlling it.

Vascular disease is of importance when ocular surgery, especially for cataract or glaucoma, is considered. Hypertension or weakened vessel walls, if not recognized and proper precautions taken, may result in expulsive choroidal hemorrhage which often means loss of the eyeball, or at best retention of the globe with very little vision.

I enjoyed Dr. Chapman's pathologic fundus pictures very much. I think they are valuable to all of us, and I think they constitute a good review of fundus pathology.

Dr. M. H. Barker, Chicago: The subject has been very well presented in this symposium with regard to bringing out some serious clinical complications met in the hypertensive group. So much material is appearing in the scientific and lay press on this problem that the public is getting interested in the subject and physicians are demanded as never before to be well acquainted with true advances in the treatment of hypertension.

In this great group of vascular cases called hypertension, we have all seen crises that were only temporary, and those with thromboses, hemorrhage and coronary occlusions or acute heart failure (dilatations) that cause death, either at the time or were attended with prolonged disability and suffering. These emphasize the importance of elevated tension, so that anything that we can do to avoid or reduce elevated blood pressure is important. In the last few years we have been working with the gradual reduction of pressure in various age groups, as reported in the Journal A. M. A. this spring, and we have a definite feeling in our clinic that dropping the blood pressure is attended with no serious danger, if done gradually. Certainly, watching these patients over months or years will show them to go through periods of several weeks or months during which time their blood pressure will run at much higher levels. Given a hypertensive running 160-200 much of the time; observations at regular intervals often show at some period during the year a gradual increase to levels of 230-270 mm. which are classed as "vascular crisis." It is during these periods that they are in greatest danger. Various observations give us no reason for these exacerbations. Certainly during these periods of ascent we find the blood serum proteins increased in a great percentage of cases. The uric acid and phenols tend to pile up. If the process is reversed either by the natural course of events or by therapeutic means there is a relief of the symptoms and a descent from their state of vascular crisis is associated. In addition to relief of symptoms, as the blood pressure drops, edema of the eye grounds decreases, hearts quiet down and compensation returns, the urinary picture improves and renal function tests improve. So we are firmly of the opinion that dropping the pressure by whatever means, as long as it is very slowly done, is a distinct step desired for the patients' security. No doubt the future will bring out the points of difference between the different types of hypertension as in fever, and these assaults on our vascular structure will be understood and relieved. Certainly, close clinical and laboratory study are now throwing much practical light upon this problem.

Dr. C. Elliott Bell, Decatur: Dr. Barker observed that when the blood pressure in hypertensive heart disease was progressively increasing, treatment to lower the blood pressure should be used energetically and at once. It seems to me that this procedure entails certain dangers. I have recently observed two cases which ended tragically following the use of vasodilators which produced a sudden fall in arterial tension.

Dr. S. L. Shapiro, Chicago: I have probably obtained much more than I gave. Men who are specialists, even those who work in the universities, often do not have an opportunity to get the big picture, the entire picture, as do physicians who are doing general work, although we strive to do so. I was greatly benefited in listening to these other papers.

Dr. Leo Zimmerman, Chicago: I want to express my thanks to Dr. Ripley for emphasizing the venous side of this picture. I consider it a highly important but sadly neglected phase of the problem which merits all our attention.

ATHEROSCLEROSIS

Its Incidence and Some of Its Results in One Thousand Consecutive Necropsies

NATHAN S. DAVIS, III, A.B., M.D., F.A.C.P.

Assistant Professor of Medicine
Northwestern University Medical School

CHICAGO

Although, from the studies of mummies, atherosclerosis has existed at least since earliest historical times and although much has been written on the subject since the sixteenth century, E. Sydenstricker (Arteriosclerosis, Edited by Cowdry, the MacMillan Company, New York, 1933) concludes "that statistics of arteriosclerosis are unsatisfactory to such a degree as to warrant very limited conclusions as to the prevalence of the condition." The statstics available appear to be derived from blood pressure studies, from studies to determine the incidence of palpably sclerosed superficial arteries and from mortality statistics based on death certificates. Another possible source of information, the study of large series of necropsies, seems to have been neglected. Like the other sources of statistical information mentioned, this one is not entirely satisfactory. In routine necropsies, no mention is, as a rule, made of the presence or absence of atherosclerosis of the superficial arteries, of the arteries of the head, neck, extremities, or of the trunk except some of those within its cavities. The common carotids, common iliacs, renal, mesenteric and splenic arteries are occasionally mentioned; the aorta and coronary arteries and the results of atherosclerosis on the myocardium and kidneys usually.

A study of a vast series of records of routine necropsies will give accurate information regarding the incidence of atherosclerosis in the aorta, coronary and renal arteries. Information of value may be gained as to age of onset and the

From the Department of Pathology, Northwestern University Medical School.

average duration and extension before secondary pathology and resulting morbidity and mortality develop. In addition, more accurate information may be gained regarding the incidence of atherosclerotic scars of the myocardium and kidneys, of coronary occlusion, and of other pathological conditions resulting from atherosclerosis.

In an attempt to evaluate this approach to the problem, a study of 1000 unselected necropsy records in the Department of Pathology, Northwestern University Medical School, has been undertaken. The results of a study of only 1000 records may be of some value in determining gross incidence but the number of cases in each of the five year age groups are not sufficient to more than suggest the general trends of the incidence of these lesions in a few arteries and their effects on a few organs. It is interesting to note in this connection that the curve of incidence by age groups in this series of necropsies does not differ greatly from the curve by age groups in the Mortality Statistics, United States Department of Commerce for 1933 (Chart 1).

These necropsy records which include twenty-eight still births, contain proportionately fewer cases in the younger and older and more in the middle age groups than do the U. S. Mortality Statistics yet the curves do not differ radically. The number of records in the young and old groups in this series is so small that percentage figures based on them cannot be considered accurate. Yet the curve of the incidence of atherosclerosis, by age groups, is quite regular.

The incidence of atherosclerosis of the aorta and of the coronary arteries, seems to be about the same in males and females (Chart 2). There seems to be no direct relation between the percentage incidence in the various age groups (Chart 3) and that of carcinoma, syphilis, diabetes or arteriolosclerotic nephritis. It is, however, much more frequently found than is carcinoma which in this series of cases has an incidence almost twice that found in the U. S. Mortality Statistics cited above.

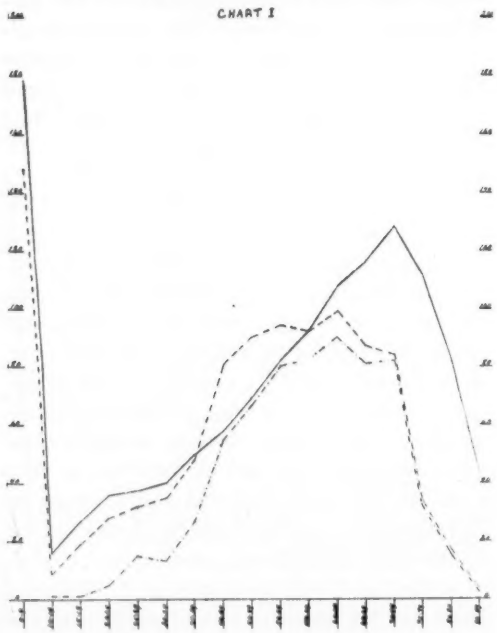

Chart 1. Number of deaths all causes, U. S. Mortality Statistics, 1933 in thousands —.
Number of deaths all causes in 1,000 necropsies — - - -
Number of cases of atherosclerosis of aorta or coronary arteries — - —

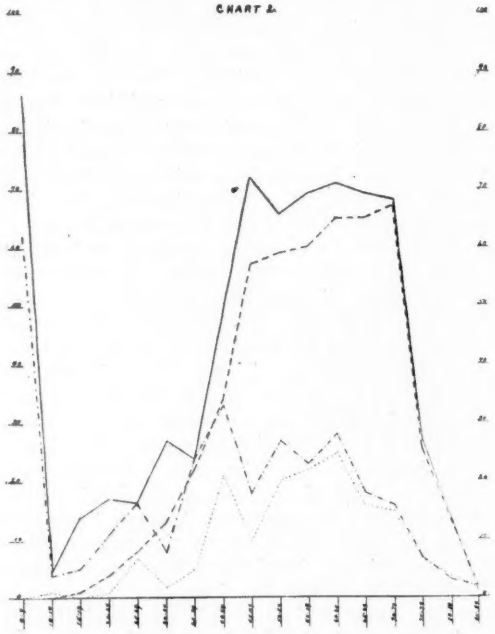

Chart 2. Number of males in 1,000 necropsies ———
Number of males with atherosclerosis of aorta or coronary arteries - - -
Number of females — - —
Number of females with atherosclerosis of aorta or coronary arteries - - - - - - -

Sixty-five per cent. (Chart 4) in round numbers of all of the cases had more or less atherosclerosis. In 28% there was little atherosclero-

sis; in 16, a moderate amount; in 21 extensive. In 20%, there were calcified atherosclerotic plaques. In about 42% it was an incidental

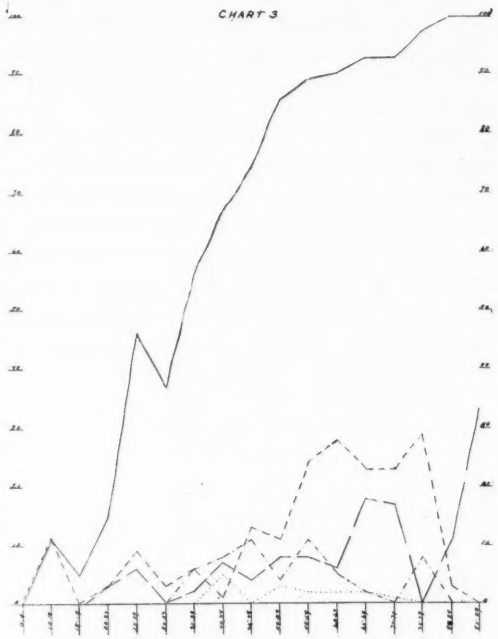

Chart 3. In 1,000 necropsies percentage incidence according to age groups with:
Atherosclerosis of aorta or coronary arteries ——
Carcinoma — — —
Syphilis — - —
Diabetes - - - - - - -
Arteriolosclerotic nephritis —— ——

finding; in 14 the cause of the primary cause of death and in eight, the etiological factor in an important contributary cause of death. In Table I, are listed the causes of death in those cases in which atherosclerosis was considered as an etiological factor. When a larger series of cases has been studied, it will be interesting to determine whether it is more or less frequent in those in which cancer; diabetes, arteriolosclerotic kidneys, cholecystitis and prostatic hypertrophy or other diseases are also present. In Chart 5, the number with little atherosclerosis of the aorta or coronary arteries, with a moderate amount and with extensive atherosclerosis and the number with calcified plaques are shown by age groups. It seems that atherosclerosis has its inception during youth and begins to increase rapidly during the fourth decade. The fall in the latter decades is due to a drop in the number of cases for as will be seen in subsequent charts, the percentage incidence in these groups is between 95 and 100. The curve for a moderate amount of atherosclerosis begins about ten years after that for a little and remains lower until the 65-69 age group. While there is one case with extensive atherosclerosis as young as the first with a moderate amount, this curve starts up five years after the curve for a moderate amount and crosses it between 60-64; that of a

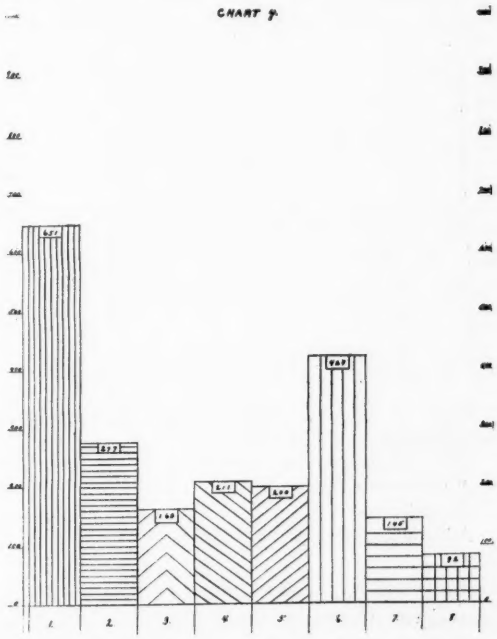

Chart 4. In 1,000 necropsies, the number with
1. Atherosclerosis of the aorta or coronary arteries 651
2. Little atherosclerosis of the aorta or coronary arteries 277
3. Moderate atherosclerosis of the aorta or coronary arteries 163
4. Extensive atherosclerosis of the aorta or coronary arteries 211
5. Atherosclerosis with calcification of aorta or coronary arteries 200
6. Atherosclerosis an incidental finding..... 424
7. Atherosclerosis the primary cause of death.... 145
8. Atherosclerosis an important contributary cause of death 82

little, between 65 and 70. The curve of the incidence of calcified atherosclerotic plaques begins five years after but follows closely that of extensive atherosclerosis, in fact rises higher in the 65-69 age group as this lesion is sometimes present even when there is but little athero-

sclerosis; when the atherosclerotic lesions are old though not so numerous.

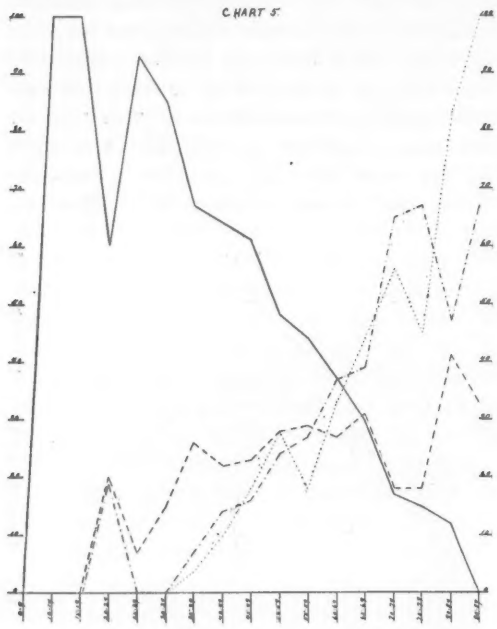

Chart 5. In 1,000 necropsies, percentage incidence according to age groups with:
Little atherosclerosis ———
A moderate amount — — —
Extensive — - —
Atherosclerosis with calcification - - - - - -

In Chart 6, the percentage incidence by age groups of atherosclerosis as a primary and as a contributary cause of death and the incidence of calcified atherosclerotic plaques are illustrated. Atherosclerosis seems relatively unimportant either as a primary or contributary cause of death in those age groups under 45-49 and increasingly important thereafter. The curves of atherosclerosis as a primary or contributary cause of death parallel quite closely that for calcified plaques which are, however, proportionately more common in the older groups in which there are so few cases that the percentage figures cannot be accurate.

Next are illustrated (Chart 7), the percentage incidence according to age groups of atherosclerosis of the aorta or coronary arteries, of the aorta, of the coronary, pulmonary and cerebral arteries, of atherosclerotic scars of the kidneys and myocardium. Atherosclerosis of the pulmonary arteries seems to be relatively rare; its relation to mitral stenosis, syphilis, arteriolosclerosis, etc. should be determined. Atherosclerosis of the cerebral arteries is undoubtedly much more common than it seems to be as the head was examined in relatively few cases. Atherosclerosis of the aorta appears earlier than does atherosclerosis of the coronary arteries but the incidence of lesions in the coronary arteries is about the same as in the aorta after age 60. The curves of incidence of scars in the myocardium and the kidneys ascribable to lesions in their arteries are so similar that it seems that the disease affects the coronary and renal arteries at about the same time. Furthermore it seems that atherosclerosis of the aorta exists for at least twenty years and of the coronary arteries for

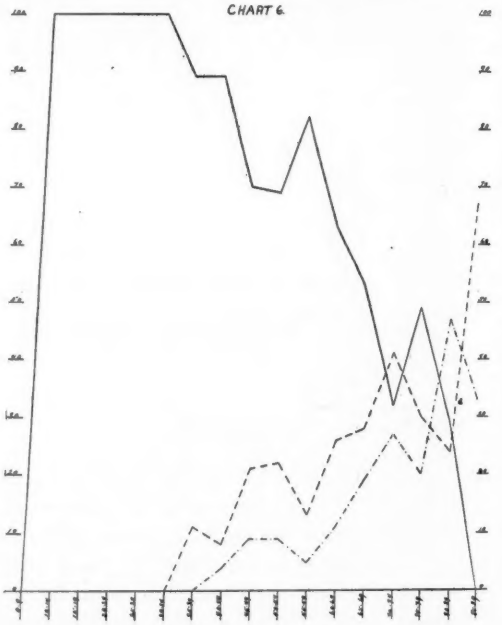

Chart 6. In 1,000 necropsies, percentage incidence by age groups of atherosclerosis:
As an incidental finding ———
As the primary cause of death — — —
As a contributary cause of death — - —

from ten to twenty years before the scars in the myocardium appear.

The percentage incidence of atherosclerosis of the aorta or coronary arteries, of the coronary arteries, of atherosclerotic myocardial scars, of coronary thrombosis, and of atherosclerosis as a primary cause of death is illustrated in Chart 8. Again the conformity of the curves is note-

worthy in view of the small number of cases in certain age groups. Congestive heart failure or coronary thrombosis cause a large proportion of the deaths ascribable directly to atherosclerosis. About one-half to two-thirds of such

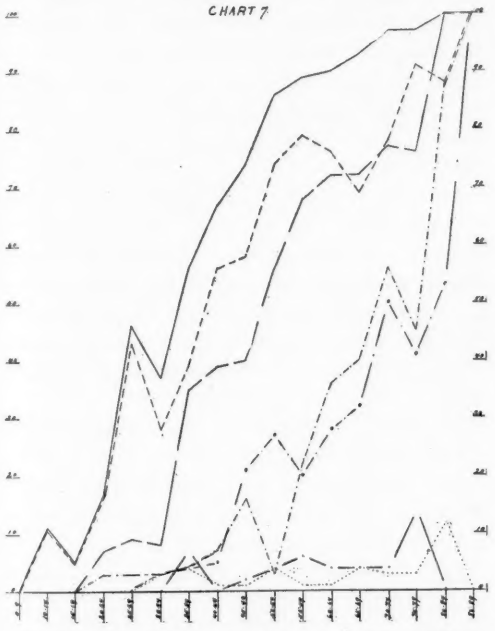

Chart 7. In 1,000 necropsies, percentage incidence by age groups of:
Atherosclerosis of aorta or coronary arteries ——
Atherosclerosis of aorta — — —
Atherosclerosis of coronary arteries — — —
Atherosclerosis of pulmonary arteries - - - - - -
Atherosclerotic scars of kidneys — - —
Atherosclerotic fibrosis of myocardium — — — -
Cerebral hemorrhage and thrombosis - — -

deaths are caused by recent or ancient cardiac infarcts.

In Chart 9, the percentage incidence is given of atherosclerosis of the aorta or coronary arteries, of atherosclerosis as an incidental finding and as the etiological factor in the primary and contributary causes of death and of carcinoma as a cause of death in those 44 and under, in those 45 and over, and in those 65 and over. Carcinoma causes more deaths in those 44 and under, atherosclerosis more in the two other groups. Each causes almost one-third of the deaths in those 65 and over but atherosclerosis is a primary or the etiological factor in the contributary cause of death in about 55% in this group.

Less is known about the incidence, cause, life history, prevention and treatment of this very common disease of the arteries than is known about carcinoma. Yet atherosclerosis and carcinoma are the primary or contributary cause of death of some 85% of the deaths in this series in those 65 and over, of some 55% of those 45 and over, of some 20% of those 44 and under. This disease of the arteries is present in the aorta

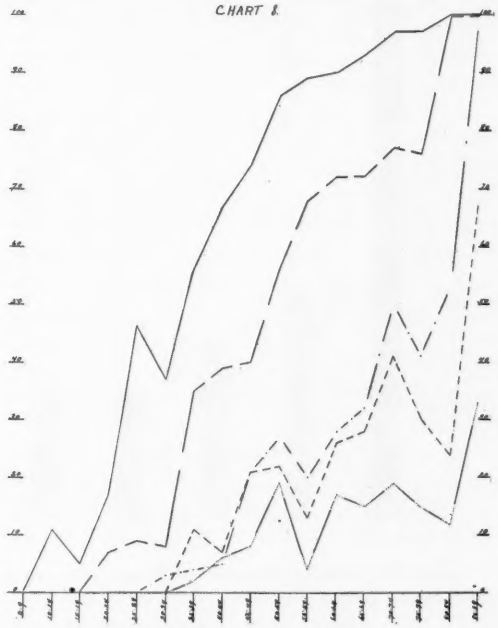

Chart 8. In 1,000 necropsies, percentage incidence by age groups of:
Atherosclerosis of the aorta or coronary arteries ——
Atherosclerosis of the coronary arteries — — —
Atherosclerosis as a primary cause of death — — —
Atherosclerotic fibrosis of myocardium — — — -
Thrombosis of coronary arteries, ancient or recent
- - - - — - - - -

or coronary arteries in some 90% of those over 44 and in some 95% of those over 64 in this series. It appears early in life and is almost universal in old people. Years elapse between its onset and its appearance as the etiological in the primary and contributory causes of death.

As stated previously a series of 1000 cases is not nearly long enough to be the basis for conclusions in such a study. The close conformity of the curves presented, indicate, however, that atherosclerosis is undoubtedly the most common pathological condition in those over 35 years of age, its results the most important causes of

death in those over 45 and that it is a very chronic and slowly progressive disease.

It seems that reasonably accurate data, data more accurate than that from other sources, may be obtained from the study of large series even of routine necropsies. These figures can

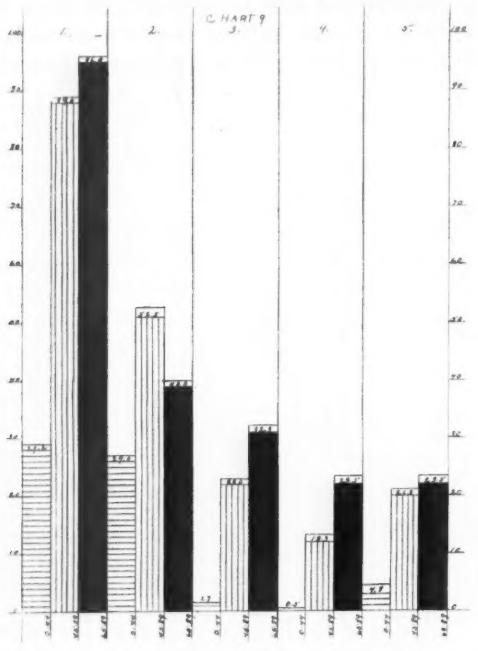

Chart 9. In 1,000 necropsies, percentage incidence in certain age groups of:

	in 400 0-44	in 600 45-89	in 225 65-89
1. Atherosclerosis of aorta or coronary arteries	29.2	89.0	96.0
2. Atherosclerosis and incidental finding	27.0	52.5	40.0
of death	1.7	23.0	32.3
3. Atherosclerosis, the primary cause			
4. Atherosclerosis, a contributary cause of death	0.5	13.3	23.5
5. Cancer, the cause of death	4.85	21.3	23.5

be made more accurate if pathologists who perform many necropsies will systematically note the presence or absence of this disease in the larger arteries of the neck, extremities, thoracic and abdominal viscera, and of the superficial vessels and its relation if any to the cause of death. Studies to determine the types of atherosclerosis described by Leary (J. A. M. A. 105: 475, 1935), and the age of the lesions should be included. Very complete clinical records would, of course, add greatly to the value of such studies.

It seems then that while animal experimentation in connection with the etiology and treatment of atherosclerosis should not be neglected indeed should be fostered, there is much that can be learned about this disease from the careful study of routine necropsies; more from the study of large series in which the condition of as many arteries as possible is specifically noted; more if the cases have been carefully studied clinically. However, until methods are devised for the early diagnosis of atherosclerosis of such arteries as the aorta and coronary, or until it is shown that, clinically detectable lesions occur, for example, in the radial arteries as early, more can be learned about the onset and much of the course of the disease by studying large series of necropsies than from clinical studies.

In closing, I wish to express my appreciation of the kind co-operation of Dr. James P. Simonds, Professor of Pathology at Northwestern University Medical School who generously made available for this study all of his records. The records of the first thousand complete necropsies since January 1, 1929, were included in this study.

TABLE 1

a. Causes of death in cases in which atherosclerosis was considered the etiological factor of the primary cause of death.

Cerebral hemorrhage or thrombosis	31
Ruptured aneurysm, Circle of Willis	2
Atherosclerotic heart disease	59
Coronary thrombosis	44
Pulmonary thrombosis	3
Mesenteric thrombosis	1
Gangrene of an extremity	5
	145

b. Causes of death in cases in which atherosclerosis was considered as the etiological factor of pathological lesions that were contributary causes of death.

Syphilis of the heart and aorta	6
Pericarditis, chronic obliterative	1
Endocarditis, acute vegetative	1
Endocarditis, chronc rheumatic	2
Nephritis, subacute glomerular	1
Nephritis, chronic glomerular	2
Renal arteriolosclerosis	7
Bronchopneumonia	13
Pneumonia, lobar	6
Pneumonia, aspiration	1
Recent thyroidectomy	2
Cirrhosis of the liver, hypertrophic	1
Gangrene of the lung	1
Pernicious anemia	1
Diabetes mellitus	3
Myeloblastic leukemia	1
Cerebral hemorrhage due to trauma	1
Carcinoma	17
Fatty liver (acute alcoholism)	1

Purulent bronchitis and bronchiectasis	2
Cholecystitis and cholelithiasis	3
Ulcer, duodenal with perforation	2
Ulcer, gastric with hemorrhage	1
Prostatectomy, recent	2
Septicemia	1
Pyelonephritis	1
Retroperitoneal and perirectal abscess	1
Adenoma of the prostate with retention of urine	1
	82

THE MEDICAL RELIEF PROGRAM OF THE ILLINOIS EMERGENCY RELIEF COMMISSION

H. P. SCOTT
Director of Medical Dental Relief Service
CHICAGO

The program of medical relief of the Illinois Emergency Relief Commission was developed by executives of this Commission in co-operation with a committee of members of the Illinois State Medical Society. It was adopted by the Commission at its meeting January 19, 1934. Since then, the plan has been adopted by ninety-two counties of the one hundred and two in Illinois and obligations totaling $5,596,600.65 have been incurred in furnishing medical and dental relief to clients of the Commission. Prior to January 1 of this year, the obligations ran between $200,000 and $300,000 per month.

Perhaps the best justification that can be given for this program is the fact that it has worked and is still working as a practical means of furnishing medical aid to indigent men, women and children. In the main, I believe the program has been accepted by both the public at large as well as by the medical profession. While there are doubtless many people who may disagree with certain phases of this program, I believe that as a whole it is supported and that disagreements with it as a rule are due not so much to a lack of sympathy with the program itself as they are to misunderstanding of its relation to the entire relief program.

To understand the Illinois Medical Relief program, it is necessary to bear in mind certain basic principles and procedures under which the Commission operates. The Commission was created by the Illinois Legislature in February, 1932, for the purpose of furnishing relief to those who by reason of unemployment or otherwise were destitute or in necessitous circumstances.

Read before Secretaries' Conference, Illinois State Medical Society, Springfield, May 19, 1936.

In performing this task, the Commission proceeded on the theory that it was generally desirable to do things through established procedures rather than to set up new procedures for supplying people with the necessities of life. The Commission, for example, might have opened a chain of commissaries, to which all its clients would go for their food. Instead, it has operated on the procedure of using local groceries and markets. More recently, the Commission went on a system of cash relief for supplying families with their relief needs. This is in line with the general procedure of having normal conditions maintained as nearly as possible.

A man in need of medical services usually selects a physician in the community in which he lives and goes to him for treatment. The Commission recognized this procedure and adapted it so far as it could to its medical relief program. The program in its broadest outlines is very simple. Any practicing physician in good standing may state his desire to receive referals from the Illinois Emergency Relief Commission through its various agents. The client of the Commission whose need for medical services has been established is permitted to choose a physician from the list of those who will accept relief referals. While the program is elaborated by further controls, in its essentials, it is an adaption of the normal patient-physician relationship.

In other words, the basic principle behind the medical relief program is the use of normal procedures in the furnishing of relief and is a preservation of the customary relationships between the patient and the physician. The program is, therefore, a concrete application of one of the basic principles of relief administration as carried out by the Commission.

Another important policy of the Commission which must be borne in mind in any consideration of its medical relief program, is the principle of supplementation. The Commission has at no time undertaken to provide all relief in the State of Illinois. It has always recognized the fact that there are private charities and public officials who are engaged in furnishing certain types of aid to indigents and it has never told these private agencies and officials that it intended to supersede them. On the contrary it has said: "You people have a job to do and we expect you to do it to the best of your ability. If the job becomes too big for you, we will come in and

help you. But you will still have the obligation to do your best."

It has been necessary to adopt various methods of carrying out this basic procedure. In many areas of the state it will furnish relief to those who are ordinarily termed employables, while the township officials and other agencies will assume responsibility for cases that are known as unemployables. The Commission, as a general rule, has not undertaken to furnish aid to indigents suffering from chronic ailments and to others who would be classified as unemployables. The result is that its medical program in many areas is limited to a part of the relief population. This is again an extension of the Commission's basic policy of assisting local organizations in providing relief rather than attempting to carry the entire relief load.

I think that an understanding of many procedures of the Commission depends upon bearing in mind that the word "emergency" is still in its name. It is not engaged in any long-time planning or in carrying out any programs that are designed to meet future rather than present problems. It recognizes the importance of such programs and it realizes there are many problems that are not of an emergency nature but it feels that its functions are limited to the more immediate tasks that have been assigned to it and that, therefore, it operates on what might be termed an essentially emergency program. What does this mean in terms of its medical program? It means simply that the Commission must limit its medical relief to the care of what we may call emergency cases. It cannot finance relief to sufferers from chronic ailments nor can it undertake to finance treatments that are not indicated by conditions requiring immediate attention. In making this statement, I am not arguing against the care of chronics or the treatment of conditions that are not aggravated. I am merely calling attention to the fact that the Commission is assuming responsibility for only those problems that are of an emergency character. As a consequence, the extent of the medical relief program is necessarily limited.

Another principle under which the Commission operates definitely affects its administrative procedures. When the Commission was established it determined to administer relief with the county as a unit. In order that the administration of its funds might be under the immediate supervision of responsible leaders in each county, it appointed County Emergency Relief Committees to act as its agents. Because Cook County is so large and because the problems in it were so complex the Commission has assumed direct supervision of procedures in this county but in other counties it has operated through committees.

Medical relief is administered through the County Emergency Relief Committees in co-operation with the County Medical Advisory Committees appointed by the various County Medical Societies. State-wide control of medical relief is maintained through the department of medical and dental service which cooperates with the Illinois State Medical Society through its State Medical Advisory Committee under the chairmanship of Dr. John R. Neal.

There is, therefore, a close co-operation between the Commission and the medical profession in the carrying out of this program. In general, basic procedures have been developed by the Commission through its executives in co-operation with the State Medical Advisory Committee. These basic procedures have been brought to the attention of the County Emergency Relief Committees which have adapted them to their respective counties with the co-operation of the local medical advisory committees.

The Commission has been obliged to assume responsibility for referring cases to physicians. As a body created by the Legislature it was charged with the duty of administering funds provided for unemployment relief and it cannot perform that duty if it releases its powers. As a consequence it has adopted through its County Emergency Relief Committees procedures for referring clients requesting medical relief to physicians. The procedures tend to place this responsibility on a medical social worker or a nurse with public health experience. I think this procedure has proven satisfactory in the light of past experience. Naturally, the Commission cannot undertake to refer a person to a physician when there is no apparent need for medical aid. I am sure the medical profession does not care to see such a condition come about and the Commission as a matter of economy cannot have its funds dissipated through paying for unneeded services of any sort. It is responsible to the people of Illinois for the proper use of these funds and while it is ready to furnish all

needed relief up to the limit of its funds, it must maintain adequate control of them or fail in its duty to the State. As an indication of the importance which the Commission places upon medical relief may I call your attention to the fact that when the Commission shut down in April and May, 1935, it restricted the use of what funds it had at that time to the furnishing of food and medical relief.

The medical profession, I am pleased to note, has given the Commission splendid co-operation in safeguarding its funds against improper use and in assuring an adequate and efficient administration of medical relief. The County Medical Advisory Committees have accepted their responsibilities as public spirited citizens and have performed a splendid service in their respective areas. I would certainly be lacking in gratitude if I did not at this time express my personal appreciation to the members of the State Advisory Committee for the generous co-operation they have given and, also, to the various County Advisory Committees. Whenever I have taken problems to them they have viewed them in their relations to the welfare of the public and have brought to their work a leadership of which the people of Illinois and especially the medical profession may well be proud.

With the co-operation of members of your profession:

1. We have provided medical relief to approximately 50,000 persons each month at an average cost of about $5.00 per patient per month for all services.

2. Over five thousand doctors have participated in this program. The business which went to the doctors has therefore been spread among many doctors in each county.

3. The physician-client relationship has been kept intact.

4. It has been demonstrated that it is possible to operate a medical relief program permitting the client to choose his doctor through a central or district control office and keep the respect and co-operation of the doctors.

5. We have been encouraged by the increased interest, on the part of many doctors, in public health problems with which we are confronted.

In conclusion let me state that the medical program of the Illinois Emergency Relief Commission has been designed to furnish medical aid to those in need of it through normal channels; that it is an emergency program and as such cannot undertake to provide all needed medical aid in all instances. In its administration it is in fact the dual responsibility of the Illinois Emergency Relief Commission and of the medical profession. We, who are with the Commission, have valued the co-operation we have received from your profession and look forward to its continuation in the future for we feel you gentlemen realize that the ultimate success of this program is as much your responsibility as ours.

Before I sit down I would like to quote from a recent statement by Dr. Michael M. Davis, Medical Director Julius Rosenwald Fund.

Public welfare work is about to be reorganized (or shall we say organized?) in many localities as the result of the withdrawal of federal funds from relief. What medical care will be furnished by public welfare authorities in the future? By what systems or methods shall it be furnished? No one formula will answer these questions. We know that the extent of medical care, like the amount of relief, has varied widely in different cities and localities, according to their standards, resources, and attitudes. We know that the system under which public medical care for the poor is organized will have to vary also, according to local conditions.

How shall public welfare departments cooperate with health departments? With Medical societies? With hospitals? With outpatient departments and other clinics? Whether this co-operation is intelligent and effective will have immense influence over the quality and cost of medical care for the poor.

At this moment, in a rapidly changing situation in different parts of the country, the primary need is that public welfare officials shall recognize that the medical care load is likely to fall upon their shoulders in larger measure than ever before. Recognition of this responsibility will lead to study of the policies and methods through which good medical care can best be supplied.

MICHAEL M. DAVIS,

Director, Medical Services, Julius Rosenwald Fund.

(April Mid-monthly "Survey" Journal Social Work) Vol. LXXII No. 4, 762 E. 21 Street, Brooklyn, N. Y.

DISCUSSION

Dr. J. S. Templeton, Pinckneyville: This matter has been of great interest to us all for the last two or three years, and I was glad to hear Mr. Scott's paper this morning. He mentioned the fact that 92 counties out of 102 co-operated in this great work; and, there was some dissatisfaction among citizens and some among

the profession. I will say that something like five thouand physicians assisted in this great work. We owe a great deal to the State Committee. I well remember when this matter first came up before the Council. It was a new thing and we didn't know just what course to take. There was one thing that was made plain to that committee. We were unanimously with them, that, insofar as possible, the relationship of physician and the family should not be disturbed, which is one of the basic principles of the medical profession today. One of our aims is to maintain these principles. We don't want to embark on any unknown sea if we can possibly help it. The fact that every county was asked to co-operate was one good reason for success. Success in medicine will never be acquired through a list of bureaus established in Washington, D. C., or in any other center unacquainted with our needs, unless the local profession are taken into consideration. It has been demonstrated by this work, that where the profession is placed in charge and consulted, the results are far better. In counties where the local committee was strong and most active, there has been the least trouble with medical relief.

Many things are being done by bureaus and notoriety seekers that could be done far better by our profession. Our hope in these trying times is among ourselves. It is for the profession to step forward with loyalty and co-operation with our Department of Public Health and any other organization with whom we can co-operate. We must be loyal and observe the high ideals of Oliver Wendell Holmes and those of his day and since, who have been humane, honest, and energetic in caring for not only the rich, not only the common people, but the indigent and the poor as well.

We have had many things to be proud of and among them, I think, is the co-operation of the profession in this great work of which Mr. Scott has so eloquently and so plainly spoken. As to our future set-up, I fear we will have more trouble with our local affairs than we have had in the past two or three years. Most of our county organizations have seen these things coming, and are willing to co-operate. So, in our county, a committee was appointed, to draft a fee bill along the same lines that Mr. Scott mentioned. We handed the fee bill to our county commissioners. We left it open for discussion, and told them we would be glad to meet them at any time. However we have not had an invitation to meet these men.

The task is yet before us. And, as Mr. Scott referred to the fact that times were changing, these things have to be looked after, and it is up to the profession today to see that it is done in the proper way. In this work we have been doing, some of our members have been losers and some have been winners, but if we fight for what we believe to be right we will all be victors in the final count.

Dr. Charles H. Phifer, Chicago: I want to take this occasion as a member of the State Advisory Committee and as Chairman of the Advisory Committee of Cook County to congratulate Mr. Scott on his very able presentation of the medical program in Illinois. At the same time I want to thank him for the co-operation he has given the physicians in the State of Illinois in trying to help us carry out the details of this project.

There are a few things in connection with the program that should be thoroughly considered: First, the responsibility of directing this project for the medical profession was placed upon organized medicine. Second, we have had the health and welfare of clients of the Commission to think of. Third, we have been the guardians and directors of public funds. Fourth, to make this program effective, it required competent local committees, the members of which had a good knowledge of medicine, were public-minded, fair and just in their decisions, and willing to sacrifice time in the interest of the profession and the public. Fifth, our reputations, as advisers and directors in connection therewith, has been at stake.

The question of policy and the question of judgment are items that have always been given a great deal of consideration by the members of your state and local committees. The responsibility and the magnitude of this program has varied in the different counties of the state. In Cook County we have had over 800,000 people on relief the greater part of the time. This metropolitan area was affected earlier and to a greater degree than the other parts of the state, consequently all available funds were exhausted in our county, which left us with the care of the chronic as well as the acutely ill. Prior to the installation of the Illinois plan, some 80 physicians in Cook County under civil service, carried on this work. During the last two years under the Illinois plan, over 2,600 physicians registered for this project in our county, and in this period of time more than $1,090,000 has been paid to this group of physicians for the medical care of the indigent and unemployed.

Lack of proper understanding of the details of the relief program and its method of application has no doubt been responsible for some of the abuses we have had in our community, as well as some of the troubles of administration. The question of preventing abuses in chronic care has been one of our great problems. These abuses have been comparatively small, when we realize that of more than 2,600 physicians participating in the work, in only about one-half of 1 per cent. has it been found necessary to administer some form of discipline. The nature of the latter has varied from admonishment in some cases to suspensions varying in time from thirty days to six months, and in a very few instances indefinite suspension was recommended.

The high payrolls among pharmacists has attracted a great deal of attention recently in our county. During the month of March the drug bills in Cook County exceeded by $10,000 the amount paid the physicians. This phase has been thoroughly investigated and is now receiving our full consideration.

In my opinion the Illinois Emergency Relief Commission has contributed a great deal to the care of the indigent and unemployed. Some of the principles they have maintained I hope may be continued after the Commission has been disbanded. I personally feel that among these, none is of greater importance than the

privilege of permitting the client to choose his private physician. This is a great improvement over the old type of contract practice, which had many objections. I trust that the Illinois State Medical Society may see fit to perpetuate for the time being at least, the function of the Advisory Committee, even though the question of relief is discontinued on the scale upon which it is at the present time. This Committee could have much to do in helping to bring to those responsible for relief in various townships and counties, the benefits derived from permitting clients to have their own private physicians instead of submitting to the former type of contract practice.

One of the most interesting things to me in this whole program has been the co-operation of the medical profession in fulfilling its share. Second, the change of feeling of the various social agencies regarding the medical profession, and the efficient manner in which they have adjusted themselves to the undertaking. I need only recall to those who are familiar with the first work of the state committee, the handicaps we had to meet in various parts of the state in attempting to inaugurate the plan. In Cook County it is most gratifying to our Committee to find that our sincerity of purpose and endeavor has won the support of the Council of Social Agencies, who are advisers to the Illinois Emergency Relief Commission, and the Cook County Bureau of Public Welfare.

Dr. Emmet Keating, Chicago: I haven't as yet become poor enough to make emergency relief calls in Chicago. In common with many physicians I am treating many people who can not pay their bills, but they are not on emergency relief. The first thing I want to say is, I do not believe that in the history of medicine in the Unted States, has so great a burden been carried as the burden carried by Doctor Phifer and his committee of doctors in Chicago. He has intimated that he faced a rather unfriendly situation. He is not only faced with that ordeal, but he has helped matters by changing the viewpoint of a great many people. He has had a tremendous task to perform. I think it is fairly evident to any one who gives the matter any thought that when any one except the patient, or the patient's immediate family, assumes the obligation of paying the doctor bill, dishonesty, incompetence and all the other disagreeable things appear at once. It doesn't seem to be economically sound for some one else to pay our doctor bills, and I think it shuld be emphasized over and over again that the medical profession has never refused to take care of the poor. It is true that in Chicago I have heard a few doctors say, "If they haven't any money, I tell them to go to the County Hospital. Why did you call me?" I am happy to believe and say that that is the attitude of only a few. The medical profession is always ready to take care of the poor and to do it without price. I do not believe that this emergency is going to continue forever. I believe it is our duty to try to make people understand that this is a temporary measure and that we, as soon as possible, want to get rid of all emergency relief.

So money-wise a man as J. P. Morgan said that relief is only properly managed when it is managed by the small local community. That was when Mr. Hoover was president, but for some reason or other Mr. Hoover did not champion that idea, and Mr. Morgan was laughed out of court. But Mr. Morgan was right and is right now. The local community, the little community, should take care of its relief and then we would not have this tremendous machine that is eating up the bread and butter of those who are willing to work and must work to keep alive many of those who are not. So I would like to repeat that it is the duty of every organization in medicine to keep the doctors informed that our present situation is not permanent, that we will get back to our old plan of everybody doing everything he can to take care of himself.

Mr. Scott (in closing): I think there are just two reasons for the success of any program such as we have had. And the first one lies with the doctors. A committee is selected, and wisely, I think, in each county in the State to co-operate with, to advise and give us direction, and interpret the multitude of things that come up; advisory, to be sure, but nevertheless very important. That committee of doctors is so important I think it should be made up of the best men in the county. I do not mean all the doctors in the county are not good, but there are some doctors in every county who just cannot work at that kind of job. Even though the committee cannot agree with the program in its entirety, they should at least be sympathetic with the plan to keep the patient and doctor relationship open and to give us counsel.

The second reason for success is a reasonably well trained person, the nurse or medical social worker who handles the business of issuing referals. This person should know how to get along with doctors; somebody who has more than ordinary common sense, who has a sense of humor, who can look the doctor in the eye when he gets a little excited, smile and keep his co-operation and good will. We have many instances over the State where the doctors tell me that at first they rebelled and would have nothing to do with the program, but now, as they watch the ethical procedure of the people in charge here and there—not all of them—and the way they co-operate, they are for this program, and they are not for some of the other methods of administering medical care. That comes from the members of your profession all over the State. Whether or not it will be continued I do not know, but the plan is working, not a hundred per cent. perhaps, but nevertheless working. Insofar as we have to go out and settle disputes or misunderstandings that come up, we have always found the doctors willing to listen to reason, and I think we lean over backwards in an effort to be fair with the doctors but we do have some trouble now and then.

CATEGORY

Judge: "How many children do you have, Mirandy?"

Mirandy: "Well, Judge, I has two by my first husband, one by my last husband, and then I has two of my own."—*Battalion.*

WHAT CAN COUNTY SECRETARIES DO FOR ORGANZED MEDICINE?

C. S. Skaggs, M. D.

EAST ST. LOUIS, ILLINOIS

The topic assigned to me is a question. The question pleads for an answer, but time at my disposal would not permit me to tell all county secretaries could do for organized medicine. No one who is a part of organized medicine has the opportunity to do so much for the organization as the county secretary. This being true, I am going to ask you county secretaries a question. What are you going to do for organized medicine?

It is not given to everyone in organized medicine to be a good county secretary. Yours is a special task. You who make good in this office are specialists and your opportunities are beyond your physical strength to fully discharge. What you can do and what you will do are two questions that are far apart and there yet remains what you should do.

The lack of unity in the ranks of organized medicine is not our greatest weakness, but our only weakness. With medical unity there could be no weakness or unsafe places in organized medicine. By medical unity I have no thought of selfish power but the unity of the ideals and purposes of organized medicine.

To have medical unity there must be hospitality and friendliness among physicians. To have this there must be a reason for us to exchange these attributes of confidence in each other.

The county secretary can, by personal contact with the individual members promote and bring such a relation into a reality in his society. I need not take your time to tell what this would mean to organized medicine with each county in the state society functioning under such a condition.

Education: When I say that there is a need for a better understanding knowledge of the purposes and workings of organized medicine among the rank and file of our members, I do not mean to cast any reflection upon the membership, but the fact remains that the majority of our membership knows far too little about what organized medicine is really doing for the individual physicians. The average member has no idea that the great burden of the work of our state society is carried by less than two hundred members. They do not know that if these two hundred members should cease giving of their time, energy and I might say money, our state society would collapse and stop functioning. Our membership should know this and if they did we who carry the burden would be receiving help instead of oftentimes criticism and there would be more intensive work in the county societies.

Medical Society Dues: The average member does not know that the cost of maintaining organized medicine would be increased tenfold if this small minority did not give so freely. They have never appreciated the fact that they enjoy all the benefits of organized medicine for a cost far below the membership in a golf club.

These things should be carried to the individual member and the county secretary can do this more effectively than anyone else.

The Need of More Workers: To you who are here today, I need not tell that the work of organized medicine is already too great to be maintained by those who are bearing the burden, but there will only be one out of fifty of the membership at this meeting and if organized medicine is going to hold what it has there must be one out of each five members actively at work in the state society. This need cannot be long delayed or we will lose much of what we now possess.

The county secretary should make a study of the need of a more active relationship of the membership and then disseminate this knowledge to those who could and would work if they realized the need. In so doing you will not only add the needed help to maintain the state society but by strengthening the state, the American Medical Association will receive a much needed power.

The county secretary should be at all state meetings. It is just as important that each county secretary should attend the state society as it is for the delegate to be present for each county secretary should be familiar with all the actions and proceedings of organized medicine. I think that it would be good for you to attend the meetings of the House of Delegates that you might better understand the work your delegates do.

Your Secretaries Conference: Your session is

Read before Secretaries' Conference, Illinois State Medical Society, Springfield, May 19, 1936.

an important part of the state meeting and I believe that you would add to your efficiency if you would hold your meetings on Monday that more time might be had for your deliberations. I believe this would give an added prestige and increase your attendance. You might add further to your conference if each secretary would bring pressure to bear upon each county president to attend the secretaries conference. You realize as I do that it is the duty of each county president to attend the state meetings and I hope that each county secretary will consider it his or her duty to ascertain if the president of their society is present at this meeting and report to your secretary whether present or absent. In so doing you will be a great help to organized medicine, for if county presidents attended the state meetings they would understand organized medicine better and in so doing would add to the efficiency of their county society and thus strengthen organized medicine. If this could be accomplished, the state society would be able to recruit new workers to help carry on needed work that cannot be done due to the lack of help.

Organized Medicine Needs More Workers: All of you here have heard much criticism about what organized medicine does and does not do among the members of your county society, but this criticism comes from the member who is not active in the work for once a member becomes active, he sees the needs and not the faults. It is always easier to say something about something than to do something. It is easier to make excuses than to make good. What organized medicine needs is members who make good. You can't help the organization by finding faults. No one questions the fact that it has faults, but get in and help correct the faults.

The greatest criticism directed at organized medicine from membership is about what is not done. Not what is done. We who are at work realize that there is much that is not done that ought to be done and would be done if we had someone to do it. You secretaries can help organized medicine to get more workers and then there will be no place for this criticism for it will be done.

The Greatest Cost to This Nation is the High Cost of Low Living: There is going up from every corner of this nation the cry of the high cost of government. This is costing us money because we have lived low. The high cost in organized medicine is not only robbing our profession of the right to live but it is robbing us of our heritage of medical science that we have labored for through the centuries and it is all the result of low living in our professional relationship.

Do You Know the Road You Are On? If you do, what are you doing to make the road safe to travel on? The Good Samaritan did well but he did nothing to make the road safe for himself and others to travel on. You secretaries can do much to make the road of organized medicine safe to travel on. Asking a question is a serious thing. You have asked me a question, I have tried to answer it. If you have seen the truth you must be willing to live it.

DISCUSSION

J. R. Neal, M. D., Springfield, Illinois: Dr. Skaggs has admonished you in a somewhat critical vein. I agree with every word he said and compliment him upon the vigor, brevity and pertinence of his language. I was particularly impressed, however, with his phrase—"The high cost of low living." Undoubtedly that expression describes the very heart of the source of national unrest in America today.

The situation is far from pessimistic, however. In spite of a good deal of unemployment the people in this country enjoy a standard of living not even approached abroad except, perhaps, in Great Britain. The unrest in the United States arises from a situation like that in which a college freshman finds himself. The freshman discovers after a very short stay at college that privileges are showered upon the upper classmen, especially seniors. He measures his situation entirely by the yardstick of the upper classmen, never recalling for a minute that by successfully graduating from grammar and high school he himself has already scaled the heights of educational achievements as compared with most people of a generation or two ago. Improvement in facilities of communication, transportation and manufacture has made the public conscious of the potential possibility of high living at low cost for everyone. As usual, the impulse is to leap from poverty to wealth at one short jump without going through the painful processes of gradual readjustment that are always essential to permanent progress.

Low living is expensive at any price. The mere recognition of this fact creates a wholesome unrest if the energy spent toward improvement can be guided properly.

So far as medical affairs are concerned, more has been accomplished in the United States toward preserving the integrity of the medical profession, while at the same time extending medical service so that it reaches constantly a greater proportion of the people with reasonable adequacy, than in any other nation under the sun. The private physician enjoys a greater degree of freedom while public health service and preventive medicine in general has reached a higher level

of efficiency without interfering seriously with private practice than anywhere else in the world.

From several standpoints our nation is still in the throes of sociological changes which create a situation more or less critical. The fortunate and optimistic fact is, however, that the true character of the situation is widely recognized. For that very reason it is freely discussed. The criticisms which are heard over the air and which burden the newspapers and magazines bring the whole picture to the surface. That gives every thoughtful person an opportunity to appraise conditions and shape his actions accordingly. Such action is entirely impossible in most European countries.

Medicine today is about where theology was when Gutenberg invented the printing press. Before Gutenberg, the secrets of the Bible were limited to the clergy. Once the Bible was printed every man became his own theologian because the clergy failed to appreciate the situation and failed to formulate a program of adaptation to the new world of theology.

The medical profession is still the repository of medical knowledge but publicity agencies have seized upon the subject of medicine with a vigor that parallels the interest in theology of another day. The medical profession is wide awake to the situation however, and is rapidly adjusting itself to the new circumstance. Failure of the clergy to go along with the current led to the creation of all manner of theological sects and even to wars. Medicine has recognized similar dangers and is up and about.

Medical information bureaus have been established in many places. These agencies, organized and maintained by the medical profession, have succeeded in obtaining the confidence of the press and of a large proportion of the population so that unreliable and false reports and newspaper accounts are frequently checked or corrected. In New York City last year the Medical Information Bureau of the Academy of Medicine handled 4,056 inquiries, 21% of which came from the press. Through this service false and misleading news was hindered and corrective statements released concerning cancer cures, tuberculosis remedies, thyroid gland functions, paternity tests, corneal transplantation and infantile paralysis serum and vaccine. The same bureau released a syndicated story daily through the Associated Press which was used in newspapers that reach 20,000,000 people.

Our own education committee performs services of the same general character and on a proportionate scale in Illinois.

No compulsory health insurance schemes have been enacted into law in this country. Corporations have been denied the privilege of practicing medicine. The standards of medical practice have been maintained on a high level and improved notwithstanding the efforts of quacks to the contrary. Money appropriated for health service by federal, state and local governments is spent, on the whole, in an orthodox manner, so far as the medical profession is concerned. Workable systems of providing medical service to the poor have been adopted in many places and doubtless will be adopted wherever new plans are needed.

All of this is so because of the intelligent efforts of organized medicine. The secretaries of county societies have been one of the most important factors in maintaining the organized machinery and in its efficient functioning. I admire and congratulate you upon the splendid job you have done.

More can be done and will be done. We have simply arrived at the Freshmen stage in our progress up the ladder of adjustment to meet the inevitable sociological changes which mechanical development has caused to be taking place before our eyes. We shall be seniors by and by, and enjoy the privileges of upper classmen. Dr. Skaggs has written the prescription. Let us accept it and live by it because he is a physician of parts who knows from experience and observation what the ailment is and what the therapeutic requirements are.

MEDICAL ECONOMICS—A SPECIALTY

A. M. Mitchell, M. D.
TERRE HAUTE, INDIANA

This paper will be a surprise to you for the reason that it does not advocate, sponsor nor propose any plan for the care of the indigent or persons in the low income brackets.

Today we have to consider the practice of medicine from four different standpoints: First, curative medicine; second, scientific medicine; third, preventive medicine; and fourth, the economic and social aspects of medicine. In this discussion I will consider only the fourth phase—economic medicine and the social aspects of medicine and their relation to the physician.

With the new thought on social security that is being poured forth today by the braintruster, the sociologist, and even some of our own profession, it has become necessary for some of the medical profession, (volunteers) to assume the responsibility of this, the fourth phase of the practice of medicine. The Board of Trustees of the A. M. A., knowing that the average practitioner of medicine would not assume these obligations and also realizing the importance of this phase of the Doctor's life, created the Bureau of Medical Economics. Since then, all the state societies have established a committee on medical economics.

Now what do we understand by the terms "Medical Economics" and "Social Aspects of Medicine"? To me Medical Economics in its literal sense has a double meaning, depending upon the interested individual's interest.

From the physician's standpoint it means

Read before Secretaries' Conference, Illinois State Medical Society, Springfield, May 19, 1936.

proper and fair remuneration for services rendered, sufficient not only for the physician to obtain sustenance and good living conditions for himself and family, but sufficient excess income to amortize his cost of education, and sufficient to allow him to continue his education and still provide a sum for the rainy day or surviving family, should incapacity or death overtake him.

From the people's standpoint, medical economics becomes the problem of procurement of proper and adequate medical care at a price possible for them to pay, ranging from nothing to full payment for services.

Taken jointly, medical economics becomes a complex problem involving the doctor, the patient, and the community.

The community has assumed many responsibilities in these modern times, among which is the assumption of the health, not only of the community, public health, but of the individual. There is no question that the community from a humanitarian standpoint alone is responsible for the care of the indigent, and must also assist the individual who cannot or deos not maintain a sustenance basis.

Between those who can maintain a sustenance basis and those who maintain themselves in varying levels above this basis, there must be a sliding scale of medical service charge gradually upward until a level of full payment is reached for those who can pay. This level, I think, can be fairly set at an income of $3,000.00 annually for an average sized family.

There must be in many instances arrangements made for those able and willing to pay for services to settle their bills by installment payments. If this is done, many who are now overwhelmed by the thoughts of a large bill and make no attempt at payment, will be glad to pay in this way.

Social service to my mind means service to others to improve moral, physical, or spiritual conditions. The question of remuneration to the social worker is an entirely different matter; this then falls into economics.

A *trained* social service worker is very essential to the community and also to the physician individually. A *trained* social service worker can and does help those in need morally, physically, and spiritually. He does save the community money by eliminating undeserving people and teaching others how to become self-sustaining. He helps the individual by teaching proper care. He helps the physician by information of the individual's economic status. The sentimentalist and the *untrained,* half-baked, self-styled social worker are a curse to the poor patient and to the physician alike.

Now let me enumerate some of the agencies that have a bearing on the material side of the practice of medicine from a physician's standpoint. First, we have medical organization; second, legislation and politics; third, foundations; fourth, hospitals; fifth, plans for medical care, and there are others.

First, let us consider medical organization. The report of the membership in the various state societies and the A. M. A. as contained in the April 4, 1936, issue of the *"Journal of American Medical Association,"* shows that the number of doctors in organized medicine in 1936 is greater than in 1935, but there are still too many doctors that do not belong to any medical society and too many are not fellows of the A. M. A. If it is good business to belong to a county and state medical society, then it should be good business to be a fellow of the A. M. A.

At the present time in Illinois out of the 11,504 doctors, 7,085 doctors belong to the State Society and of this number, 4,418 are fellows of the American Medical Association. In Indiana, out of 4,049 doctors, there are 2,834 doctors that belong to the State Society, with 1,608 doctors being fellows of the A. M. A. In New York, out of 22,812 doctors, 14,375 belong to the State Medical Society and 9,347 are fellows of the A. M. A. In Pennsylvania, out of 12,608 doctors in the state, 8,415 belong to the state organization and 5,499 are fellows of the A. M. A. For the United States there is a total of 164,514 doctors with 101,754 belonging to the State Societies of which 60,374 are fellows of the American Medical Association. These figures show that about ⅕ of the doctors are fellows of the A. M. A. Probably the reason for this is the question of dues that are charged for their county, state, and A. M. A. affiliations. Many of them pay into special medical and social organizations more dues by far than they do to organized medicine and never say a word. I know of one professional, non-medical organization in the United States that charges their members $80.00 a year dues. Medical organiza-

tion is their protection and still they begrudge the money necessary to carry on the work.

Medical organization work has been done mostly by the volunteer county medical society secretary. This faithful worker has to earn a living besides caring for the problems of the doctors in his community. If each state society had one or more paid field workers, I believe that this percentage could be raised to a place that everyone would recognize the fact that the doctors stood together—"all for one and one for all."

Now we will consider the second part, legislation and politics. Legislation can take away from or add to the financial security of the doctors. The lawmakers do not consider the doctor as a necessary part of the law. They see only the public and the votes to be gained as did Bismarck and Lloyd George. Health legislation has been passed by the Federal Government and the various states. Each time a law was considered, the medical profession was ignored.

The Federal Government started working on economic security without consulting the medical profession and it was only through the volunteers and some influences on the outside of organized medicine that the advisory medical committee was formed. In my own state a social security act was drawn up by a professor of Sociology, without consulting the State Medical Society and it was only by being fortunate enough to have the Executive Secretary of the Indiana State Medical Society in the Senate that we were able with the aid of the doctors in the state to kill an amendment that threw open county health officers' positions to anybody who had a license to practice any form of medicine in the state. Each time it has taken the work of volunteers to stem the tide which is usually against them.

Doctors as a rule are not interested in politics. Little do they realize that the medical profession as a whole, if properly organized, would probably be the greatest political bloc in the United States. It has been said by the chairman of one of the major political parties that if the doctors were organized as they should be, they could elect anyone president, they could elect anyone senator, they could elect anyone to congress and so on down the list, that they saw fit to elect. They could even have enough of their own organization in the legislative bodies to control any legislation for or against that might be attempted. Politics is a complicated business. The success in getting the right man in office has been done by volunteer workers. Volunteers cannot devote all their time to politics as the politician does because politics is a business.

The third phase is the foundations: The foundations which have been dabbling in health have been doing so only from the standpoint of the social worker who was trying to keep his job. Also the fact that the secretary or the director of the foundations was foisting his own ideas upon the public and not the ideas of the founders or the purpose for which they were organized, and through the influence of several volunteer workers, the foundations have been shown the light and as a result, several of the directors who have been fostering state medicine in the minds of the public have lost their jobs and those that haven't, have become quiet for fear that they would lose theirs.

Another side of this question is hospitals. How many doctors realize the difference between hospital facilities and medical services? How many doctors realize that their services in hospitals are putting the hospitals in the practice of medicine? How many realize that hospitals are putting out medical services as hospital facilities? How many realize that this question of hospitals is taking dollars out of their pockets? An interesting survey of this question is being conducted in one of the larger cities at the present time. I believe that when the result is published you will be surprised how they have been putting it over on you.

We have a lot of men in the profession who have voiced and crystallized sentiment against organized medicine. They have advocated some scheme or another to care for the health of the people and not one of them has ever been out into the actual practice of medicine in rural or even city communities. They are unfamiliar with the problems that the average doctor has to contend with and they are unfamiliar with the ideas that the people themselves have. Still organized medicine gives them recognition so that people feel and think their word is the word of organized medicine. They have made it hard for doctors in many localities to earn a living unless they participate in some of these schemes. If more doctors were informed along

these lines, they would exert a greater effort against any of these schemes.

Volunteer workers cannot overcome this influence. It will take the physicians especially qualified in economics to go out among the masses and teach them that these men are not the Voice of Medicine and they will have to put out something to take the place of what these men have advocated.

The social aspects of medicine consists of adequate income, housing, food, clothing and having something for emergency. The social worker can teach the people to live properly, to save and be self-reliant. The social worker can furnish the doctor with the individual's economic status. I believe all this hinges on the words of the late Samuel Gompers: "Put sufficient pay in the worker's pay envelope and he will take care of himself."

I have in my vague way tried to show that the volunteer, the County Medical Society Secretary, cannot continue to carry on all this work as he has in the past. His duties are multiplying rapidly and with all this multiplication of duties it will soon become necessary for physicians especially trained in economics to carry on this work just the same as large industries employ trained economists to carry on their work, and it will take money in the form of dues—say 5c out of the first dollar every doctor receives each day during the year—to carry on this work.

In conclusion I want to make clear the object of this paper; First, that the medical profession *cannot depend on the county medical society* secretary to carry on the economic side of medicine in the future as they have done in the past. *Second, that physicians specially trained in economics* are necessary to carry on this work in *he future. And third that it is going to take* more money in the form of dues to carry out this phase of medicine properly.

DISCUSSION

Dr. H. N. Rafferty, Robinson: Dr. Mitchell has given us an outline for medical economics which makes it easy to dissect and discuss, because of his directness to the points involved and scholarly handling of the subject as a whole.

To those of us already acquainted with Dr. Mitchell and having knowledge of the immense amount of time and thought and energy he has exerted in behalf of the economic improvement of our profession, this is no surprise. He has bearded the foundation lion in his den, and found the foundation, *per se*, not anxious to persecute or destroy the doctors. He has shown that in some instances at least these malicious practices were the "brain children" of some misguided employee, allowed to run rampant, somewhat like the proverbial bull in the china closet.

Mention was made of the establishment of the Bureau of Economics of the A. M. A., and the appointment of committees of economics in most of the state medical societies. Personally, I feel that our teaching schools, both undergraduate and graduate, should have chairs of economics, so that the new crop of practitioners turned loose in the various communities each year should have at least a basic idea of the business fundamentals so necessary to the successful practice of medicine. Each county society should have an active committee on economics, and should devote at least one meeting a year to a consideration of this phase of the practice.

Medical economics is necessarily concerned with the fees received for the prevention and care of illness, but it is also most vitally concerned with the type of service the public receives from its doctors. Broadly speaking, therefore, it is social economics. It concerns society in its constant quest for relief of present illness, and protection against future illness. Anything which improves the culture and efficiency of the physicians of a given community serves a social end just as do improvements in food and housing.

If we continue to eradicate disease after disease, as in the past, preventive medicine must be in the hands of the private practitioner rather than in those of public health agencies, and we must be paid for prophylaxis fully as well as we have been for guidance during established disease.

I was particularly impressed by the suggestion of the *sliding scale charge for that sizable portion of each* community which is above the indigent class, and yet unable to pay the standard minimum fees. In our own group this practice was put into effect to a much greater degree than ever before about 1932. We found it actually increased our cash incomes, while preserving the manhood and self-esteem of those patients who were thus made to feel they were paying their way. It also served to increase our confidence in human nature.

Our people should be trained to the necessity of prompt attention to these reasonable obligations for service, just as they have been in regard to the merchant for his wares.

Just what is the fundamental difference between business and our profession? Business is organized for *profit while our profession is basically organized for* service. With business, service is incidental. With *our profession profit seems to be. But, just as it has* been demonstrated that a business cannot endure and *prosper unless it renders service, so too it should be conceded* that the medical profession, if it is to continue to render its highest type of service to society, is entitled to a degree of profit which will permit its individual members to meet, with comfort and assurance, the same economic pressure to which other groups are subjected.

I heartily concur in what was said concerning the amateur, untrained, social service workers or "uplifters" as I like to hear them called. After contact with one of these, I find solace in the prayer of Robert Louis Stevenson: "The day returns and brings us the petty

round of irritating concerns and duties. Help us play the man, help us perform them with laughter and kind faces; let cheerfulness abound with industry. Give us to go blithely on our business all this day, bring us to our resting beds weary and content and undishonored, and grant us in the end the gift of sleep."

That medical economics is a specialty is without doubt. That we can find doctors in sufficient numbers to assume that specialty I doubt; until that time arrives we will have to keep shoulders to wheel.

Dr. Charles S. Skaggs, East St. Louis: I do not like to disagree with one who has given as much study to this subject as Dr. Mitchell, but I can see the tendency of some enthusiastic and loyal worker, becoming overworked, to begin to look around to find some place for relief and in looking about it is frequently the case that they begin to look for paid workers in the field, as he suggests. I may be entirely wrong about this but I believe it is a dangerous procedure. Whenever you go and hire somebody to go out and make doctors loyal to organized medicine, I am afraid the loyalty will be very thin. I will grant you, the county secretary is overworked, but when you go to pay him for this you bring about a situation that will be worse. You had better hire two or three good secretaries who have the love of organized medicine at heart, so that it will be purely medical. I know we must have more workers. But I doubt whether it is advisable to have a fellow go out into the field and try to bring about loyalty among the medical profession because he has a salary. I am wondering if medicine is not a great deal like religion. It is the inner principle that must come from a personal love rather than a salary. I may be wrong and we may have to hire the thing to be done, but I think we should better stay away from that. I will grant you there are a few hired secretaries that are laymen doing a good piece of work but I have never yet found one that measured beyond a good volunteer medical secretary in a county society, or the State society, as good as they are. I have no apology to make when I say that I would like to see a lay State secretary, doing anything beyond the one we have in Illinois, who is doing a volume of work, it would take four men to do, and yet keeping up a pretty good practice along with it. Dr. Mitchell, I may be wrong.

Dr. Mitchell (in closing): I am basing my thoughts on the success we have had in Indiana with our State Secretary. We have in Indiana, out of a total of 4000 doctors in the state, within 300 of the membership we want. We have nearly a 100 per cent. membership, and the man, the State Secretary, we have has gone out and done wonderful work in getting a lot of men in to the society.

Dr. Skaggs: How many of these extras attend your State meetings?

Dr. Mitchell: I just could not tell you offhand.

Dr. Skaggs: Have you increased your attendance at the State meetings?

Dr. Mitchell: Yes. Last year we had the largest attendance of any State meeting we ever had, 1800.

Dr. Skaggs: I want to know whether the members were brought in and just signed on the dotted line or whether they are loyal.

Dr. Mitchell: Three years ago we had an attendance of 1000 at the State meeting, it jumped to 1400 and then to 1800. That shows the increase in the registrations at the State meetings and the interest in organized medicine in the last three years. We have only one paid man in the whole state and the rest of them are volunteer workers.

Mr. H. P. Scott, Chicago: I am not a doctor, but from the point of view of a layman and from my traveling up and down Illinois, I think there is much good work that could be done alongside of the secretaries in the various societies by someone who has a genuine interest in and some knowledge of the problems which confront the doctor. You can strengthen the hands of these men who work in the counties. In many counties I have been in I have been told that only one or two doctors are giving any time at all to this business.

I call to mind a county some hundred miles from here where most of the doctors have become less interested in their organization for some reason or other. The young doctor in this particular county who is trying to handle the situation needs help; he told me so. He is busy trying to make a living, but a little help afforded him will go a long way towards strengthening his hands in building up more interest on the part of the doctors themselves in their own organization.

Dr. Andy Hall, Mt. Vernon, Illinois: There is no session more important than the Secretaries' conference. It is one of the most important sessions on our State Program. It should be attended not only by all Secretaries but all delegates and other members of the society should be urged to attend this meeting.

Here we discuss subjects and policies of vital importance to the County Medical Society in which most physicians are deeply interested.

The County Medical society is the most important cog in organized medicine, because it is a society that most of the physicians attend. Take a live County Medical society with membership of say, 25 to 35 and the members will usually attend at least eight of their local meetings annually. They will also attend perhaps eight meetings in the adjoining counties annually. But only about twenty per cent. of them will attend a meeting of the State society and even a smaller percentage would attend the meetings of the A. M. A. Hence the importance of a good County Medical Society.

I have served as Secretary of my own county society for twenty years and upwards. I have never had an assistant or received any salary for my work. However, I think I have performed my duties as well, if not better, than any lay Secretary would have done. Not only have I served as Secretary of the Society, but I have found plenty of time to attend to my other professional work. While I have never gotten rich, I have lived well, own a good home and have educated three boys in medicine.

There is no reason why a member of the Society could not perform all the duties of a Secretary in a Society the size of Sangamon County without employing a lay secretary. There is no reason why a county with a membership of 25 to 35 can not have as good scientific programs as you will have in your State society provided you have a live, wide awake Society.

I am not very strong on these social workers. A few years ago in my county the Captain of the Salvation Army and his wife and our supervisor attended to all the social work required in our community. Then under the new deal, with all the frills that go with it, we have had a lay personnel of as many as 35 or 40 at times, doing the work that our supervisor and the Salvation Army captain and his wife did a few years ago.

Ofttimes these lay social workers will send a physician to places to see parties who need no medical attention whatever. Sometime ago I was directed, by one of these social workers, to go over twelve miles to see a patient they said was very sick. The social worker had gone out there, made an investigation and said that this party needed medical attention. I made the trip there, twelve miles, and back. The next day they sent a social worker out to see if the patient had received proper attention and if they needed further attention.

The facts are, three persons made three trips, twelve miles and back, making a total of seventy-two miles, to see a malingerer who needed no medical attention.

Dr. D. D. Monroe, Alton: I think I might qualify as a career secretary. I followed Dr. Feigenbaum whom some of you men knew. He, too, was a career man. He was in office so long that Madison County Medical Society was known through him. I get six dollars a month for clerk hire. I like my work. I am also the auditor, bookkeeper and the dues collector. Once a month I get out a twelve page publication for the profession in Madison county. I am also secretary of the county tuberculosis association which is an activity of our county medical society.

Another thing that has interested me has been the complaint that we are going to be out of a job some day. I do believe that the doctors will never be out of a job. Why do I say that? At Kansas City the other day I saw these statistics: In 1900 there were 636 people per physician in the United States. In 1934 the number was 784 people per physician. With our higher standards of education, the population is growing faster than the number of doctors is growing. I think all of us should take courage and inspiration from this fact.

Miss Jean McArthur, Chicago: Our Educational Committee is able to assist with a good deal of the office work of county secretaries. With that in mind, we have notified secretaries that the office of the Committee would be glad to secure speakers to address the monthly meetings of the societies, to send out notices to the members and doctors of adjoining county medical societies, and to furnish publicity of these meetings to the newspapers.

A number of secretaries have taken advantage of our offer. The result has been that some counties which formerly had an attendance of perhaps fifteen or twenty at the monthly meetings now have between 60 and 75, even 100. In LaSalle County we have been mimeographing postal card notices and sending them to quite a list of doctors and have given stories to the newspapers in that section of the state.

This type of assistance gives the secretaries an opportunity to devote their time to the organization work and relieves them of some of the office details which naturally fall on their shoulders.

Dr. Samuel E. Munson, Springfield: I do not believe in putting young men in the office of secretary where older men are available, as they know very little about organized medicine, and I think the failure of many county medical societies is due to such inexperience. I believe as long as a man is capable, he should be continued as secretary. It matters not who the president is so much, but it is of vital importance as regards the secretary. The secretaries are all overburdened with the running of the affairs of the county medical society and are certainly underpaid.

About a year ago our Council decided that we should pick four or five men out of the district that could be prepared to go around and make talks on economics and health subjects. So I started calling on my societies along in the midsummer and gave them the thought that they should appoint their own committees for this purpose; also that all literature that came to the secretary's desk should be turned over to this committee, and the chairman made responsible for the work along this line in his county society. I know there have been some failures and successes from this plan. I am going to check up on my societies and recommend that they continue these committees, because the secretary's desk is usually piled high all the time without this assistance. As stated before, he has very little money paid him. I think my own Sangamon County Medical Society, with a paid-up membership of 125, pays the secretary $50.00 a year, which should at least be $150.00 a year.

These are some of the reasons for not changing secretaries.

Chairman Snively: We do not have the attendance at these conferences that we should have from an organization such as we have in Illinois. Dr. Mitchell, can you tell us something about the Indiana program?

Dr. Mitchell: When you get into a secretaryship, you get into it clear up to your neck. I have been secretary of the society for seventeen years and I have been chairman of the committee on secretaries' conference in Indiana for nearly eight years. When you get into it and do a half-way decent job they will not let you get out. They are talking about paying the county secretary $50.00 a year in Springfield; I think in the last seventeen years I have had a few postage stamps for my services, and that is about all.

Our secretaries' conference in Indiana was organized about 1926, and they had one or two meetings and finally they shoved the job on me. I conceived the idea that our State meeting was held about the first of October and that our legislature would meet in January for sixty-one days. At this time a lot of social security ideas and a lot of medical legislation would come up. In 1927, when we were revising and rewriting the new practice act in Indiana, which makes it illegal for anybody to practice medicine who does not have licence from the state board of Medical Registration, which keeps the nurses from giving anesthetics and the hospitals from practicing medicine. And this law was passed by the legislature. We decided that the best time in the year to have our secretaries' conference was along about the first of February, after the legislature had been in session for about three weeks. At that time most of the legislation that would be proposed for or

against the doctors would be in the hopper and, if there was anything to be done about any pending legislation, we had the secretaries in front of us at Indianapolis. We told them about the pending law, what we wanted them to do and asked them to go home and get busy. That was the prime thing we wanted to do: ask them to get busy. So, to make it interesting, we decided it would be worth while to go over the country, pick out men who were up on some popular subject other than the practice of medicine and have him talk at these meetings. At the last meeting we had, the first of February this year, we had Dr. Elliott, who was Chairman of the Medical Economics Committee of the State of New York Medical Society, and we had Dr. Meyerding, Secretary of the Minnesota State Medical Society, and we had Dr. West for after-dinner speaker; we also had Dr. McCowan, who is with the Children's Bureau of the Department of Labor. We put up to him the question, what was the attitude of the Children's Bureau of the Department of Labor on the social security bill, child health and maternal welfare, as they had to do with it. We have had at our meetings, out of eighty-three county society secretaries, about 85 per cent. attendance. We have a representative from practically every county in the State. We invited the doctors throughout the State. Our meetings run around 150 to 175 for that day. We begin at noon and go straight through until the work is finished, if it is nine or ten o'clock at night, according to the program, and we always have them on Sunday. Ordinarily most doctors do not have much to do on Sunday from 12:30 or 1:00 in the afternoon. We find it very successful to have them on that particular day. I believe it is the greatest and best way to educate the county secretary. All we pay for attending the meeting is a dinner. The State Society pays for any speakers we have, regardless where we get them, pays for the dinner of the county society secretaries and the presidents of the county societies that are in attendance. All others pay a dollar for their dinner. Every doctor in the state is welcome. We find it has been a great thing to help us out along the line of legislation. It is half-way between our state meetings, keeps them enthused and it brings before them a lot of subjects that would not be discussed until six months later at the state meeting. I think it is the best idea to have the meeting half-way between your state meetings. You can bring up a lot of points and get the attendance. I think you will get a good attendance in this state if you do the same thing.

Chairman Snively: The meeting is open for any questions.

Dr. D. D. Monroe, Alton: In Madison county one of the most difficult situations we have to handle has been created by the activities of a doctor who is not eligible for membership in the county society; his application has been turned down for a number of reasons at various times. He is permitted by the board of supervisors to administer relief to township patients and the unemployable. To us that is a real problem. What shall we do with that sort of situation? It seems that the licensing department of the State of Illinois and the standards set by the Illinois State Medical Society are so at variance that this man can go on and practice medicine and upset the whole economic situation, and still there is no remedy for it because the board of supervisors can treat with him. I would like to know what you do with a situation of that sort?

Chairman, Snively: Who can answer that question? Dr. Hall?

Dr. Andy Hall, Springfield: I have nothing to say.

Dr. A. M. Mitchell, Terre Haute: Public education. The only way is to educate the people in the community. If the doctors have enough intestinal fortitude to go out and make themselves active in educating the public in the community, that will overcome this thing.

PECTENOSIS AND PECTENOTOMY IN ANO-RECTAL DISEASE

MANUEL G. SPIESMAN, M. D.
CHICAGO

The description by Stroud in 1896 of an important anatomical landmark in the anal canal which he called the "pecten" and the report of a fibrous connective tissue band affecting this area called "pectenosis" by W. E. Miles in 1919 laid the foundation for a most valuable contribution by A. Lawrence Abel in 1932, entitled "The Pecten: The Pecten Band: Pectenosis and Pectenotomy." The observations of Abel as reported in the above paper are believed by the writer to have markedly changed the conception of the anatomy, pathology and treatment of many ano-rectal conditions. These observations will be briefly reviewed along with our personal experiences with pectenosis and pectenotomy in 105 cases.

Anatomic Consideration. A clear understanding of the anatomy of this area simplifies the diagnosis and treatment in about 85% of all anorectal disease. During fetal life the proctodeum pushes in and the hind gut pushes out. Where the two meet a membrane forms known as the anal membrane. During the fourth month of intrauterine life this anal membrane ruptures, forming a communication between the bowel and the exterior. Should this membrane not rupture, one of the types of imperforate anus results. Where the anal membrane ruptures an irregular line remains, which is known as the pectinate line (taken from the Latin pecten) which means like the teeth of a comb. This line is also called the dentate line because it resembles the edge of a row of teeth. Arising from this line are the anal papillae and above this line are the columns of Morgagni which occupy the upper two-thirds of the anal canal. The

bases of the anal papillae are connected by a number of irregular semilunar folds which are known as the anal valves. These form a number of small pockets or sinuses known as the crypts of Morgagni, (Fig. 1.).

In 1863 Hilton described a white line which he believed to correspond to the lineal interval

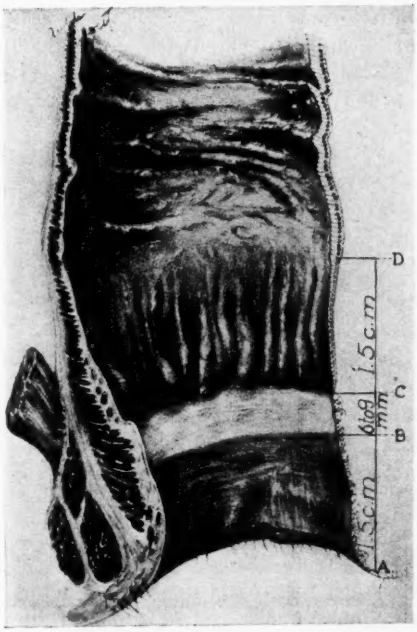

Fig. 1. Anatomical drawing of the anal canal showing the musculature and surface landmarks. A, The ano-cutaneous line; B, the white line of Hilton; C, the pectinate line; D, the anorectal line; B-C, the pecten. Note the columnar epithelium of the rectum proper above the anorectal line (D); the cuboidal cells from the anorectal line (D) to the pectinate line (C); the transitional stratified epithelium of the pecten (C to B) and the squamous epithelium below Hilton's line (B to A). (From Morgan).

between the external and internal sphincter muscles. This line is often referred to as the muco-cutaneous junction because below this line the anal canal is lined by squamous epithelium, indistinguishable from ordinary skin.

Between Hilton's line and the pectinate line is the area described by Stroud as the "pecten," (Fig. 1.). This pecten area varies in width from one-third to one-half inch and occupies approximately the middle one-fifth of the anal canal according to Stroud. Its color is intermediate between that of the skin and the mucous membrane of the rectum and in a normal subject has a glistening, smooth appearance. The pecten is lined by transitional stratified epithelium, differing from the cuboidal cells above its upper border (the pectinate line) and the squamous epithelium, below its lower border (Hilton's line). The pecten is therefore neither skin or mucosa. The part below Hilton's line occupies the lower two-fifths of the anal canal. Where the cuboidal cells of the columns of Morgagni become columnar cells, one finds an invisible line known as the anorectal line which marks the upper border of the anal canal and the beginning of the true rectum.

This line is about 1.5 cms. above the pectinate line, is more or less indefinite and is recognized chiefly by the shape of its cells microscopically. The anal canal therefore, is made up of the columns of Morgagni which occupy the upper two-fifths; the pecten which occupies the middle

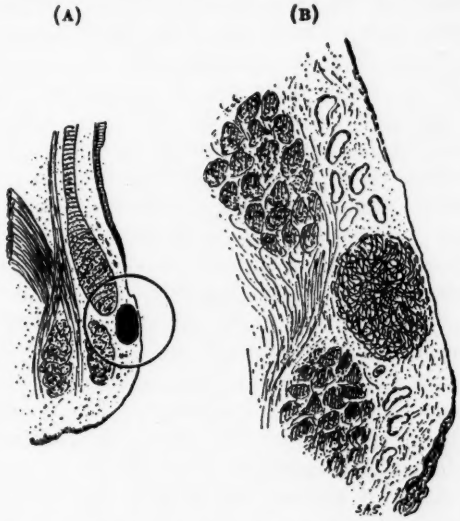

Fig. 2. (A) Section through anal canal showing pecten band encircled, in relation to normal structures. (B) Microscopical view of portion of A enclosed by circle. Note: above and below, fibers of internal and external sphincter muscles respectively; right center, organized fibrous tissue forming pecten band; above and below this, veins of superior and inferior hemorrhoidal plexuses respectively. (From Abel).

one-fifth and the lower two-fifths from Hilton's line to the anal verge, (Fig. 1.).

Blood Supply: The pecten is a most important landmark as it is the dividing point of the vascular systems, the nervous systems, and the lymphatic systems, which supply the anorectum. It also divides the skin from the mucous membrane. The pecten separates the

vascular system which supplies this area. Above the pecten the superior hemorrhoidal vessels penetrate three definite areas with main branches and as many as five secondary areas with secondary branches. If internal hemorrhoids develop, they practically always develop primary hemorrhoids above the pecten in three definite locations namely, the right anterior, right posterior and the left lateral quadrants which are supplied by the three main branches of the superior hemorrhoidal vessels. Secondary hemorrhoids may develop in between these definite locations according to the secondary branches which supply this area such as the anterior, left anterior, left posterior, posterior and right lateral quadrants. Below the level of the pecten lies a venous ring, which is supplied by the inferior hemorrhoidal plexus. When hemorrhoids develop in this area they appear in two definite forms, the chronic, as anal verge varicosities and the acute form, as thrombotic piles.

The internal hemorrhoidal area (above the pecten) area is drained by the portal system while the external hemorrhoidal area (below the pecten) by the inferior vena cava. This is important clinically because circulatory metastasis from a carcinoma above the pecten is to the liver while below the pecten metastasis may enter the general circulation and appear most anywhere.

Terminal vessels of the superior and inferior hemorrhoidal vessels reach the submucosa of the pecten and communicate with each other. Varicosities of this area commonly produce a combination type of hemorrhoid known as the intero-external hemorrhoid which is made up of a combination of internal and external hemorrhoids, united by an intermediate or communicating hemorrhoid in the pecten.

Nerve Supply. Above the pecten the anus and rectum are supplied through the sympathetic nerves in a manner similar to that of the rest of the intestine and sensation to pain is practically absent. This is important, clinically, because it explains why carcinoma of the rectum develops to a considerable size without producing any marked discomfort. Many with far advanced carcinoma of the rectum come in complaining of piles, with the single and only symptom of bleeding. It also explains why internal hemorrhoids may exist for many years accompanied by bleeding and prolapse but no pain. Only when prolapsing hemorrhoids become strangulated in the sensory nerve supplied pecten area, does pain commence. Below the pectinate line of the pecten, the area is supplied by sensory nerves and lesions of this area are painful. This explains why infected crypts, hypertrophied papillae, anal fissures, sub-muco-cutaneous abscesses, thrombotic piles and carcinoma below the pectinate line cause pain.

Lymph Supply. The pecten is also the dividing line between the somatic and visceral lymphatics. Above the pecten the lymphatics drain

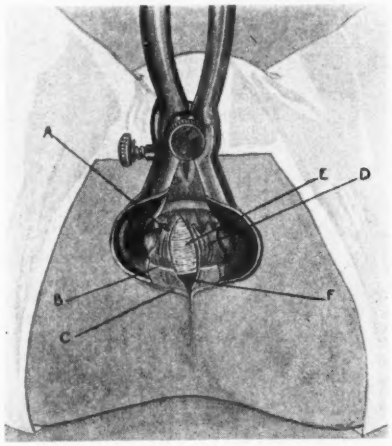

Fig. 3. Immediately the mucous membrane and skin have been divided, the white fibers of the pecten band come into view. In old chronic anal fissures the pecten band can easily be seen following the administration of a local or general anesthetic. A—Pectinate line; B—Hilton's line; C—Ano-cutaneous line; D—Anal mucosa; E—Pecten band; F—sphincter muscle distal to band.

to the peri-rectal, sacral, iliac and aortic nodes; while below the pecten the drainage is to the inguinal glands. This explains the enlargement of the inguinal glands in carcinoma and venereal ulcers below the pecten area. Undiagnosed inguinal nodes may sometimes be explained by examining the lower anal canal.

Etiology of Pectenosis. Chronic passive congestion from either internal or external hemorrhoids may lead to passive congestion in the pecten area because the tributaries from the superior and inferior hemorrhoidal veins arise from a minute capillary plexus in the submocosa of the pecten. Hypertonicity or spasm due to chronic cryptitis or inflammation also produces a local passive congestion. Constipation, straining at stools, lacerations from the

passage of hard stools, irritating liquid stools, may also cause passive congestion in the anal canal. Sometimes a pecten band may exist without any associated pathology in the anorectum. With passive congestion in this area from any cause follows round cell infiltration, and a circular deposition of fibrous connective tissue in the submucosa of the pecten. Such a deposit in the area of the pecten produces the condition described by Miles and Abel as "pectenosis", (Fig. 2). Miles described this condition as follows: "The fibrous deposit takes the form of a circular band varying in the thickness and density, completely surrounding the lower part of the anal canal, and situated between the mucous membrane of the pecten and the external sphincter muscle. In well-marked instances the band of fibrous tissue can be distinctly felt, and gives an impression to the examining finger such as would be obtained if a rubber umbrella ring had been inserted beneath the skin at the anal margin. I have named this deposit of fibrous tissue in the submocosa of the pecten "the pecten band". The pecten band does not exist in the healthy anal canal. It is purely pathological in origin."

Abel likens this fibrous tissue deposition to the indurated zone in the neighborhood of a varicose ulcer of the leg; or the fibrosis in the wall of the esophagus opposite the whole length of the cardiac sphincter in cardiospasm; or the dense fibrous tissue in the gastric wall opposite an ulcer forming the well known hour-glass stomach. J. W. Morgan excised wedge-shaped sections of the pecten band in seven cases. Histologically five showed diseased fibrous connective tissue and in two unstriated muscle with fibrous tissue, removing any doubt that the band divided was the external sphincter.

The longer chronic congestion exists, the more fibrous connective tissue is deposited and the denser becomes the pecten band. The denser the band, the more difficult is it for the sphincter muscles to relax. The anal canal becomes avascular, loses its elasticity, becomes rigid, narrower and when one examines this area the finger is tightly squeezed by the contracted lumen. The size and caliber of the feces become diminished and the patient complains of difficulty in obtaining complete emptying of the rectum. The more difficult it is to defecate the more the patient strains and the more aggravated becomes the pectenosis. A vicious circle is established. If piles prolapse and are not promptly reduced they become edematous and then strangulated by the nonyielding pecten band.

Sequellae of Pectenosis. Because of the fibrous tissue deposition in the submucosa of the pecten area, the mucous membrane, instead of being freely movable over the adjacent tissues, becomes anchored to it and poorly nourished with blood. This renders it more vulnerable to trauma. Normal crypts of Morgagni may then become traumatized by seeds, skins and fibres in the stool, with resulting enlargement and inflammation, producing the condition known as cryptitis. Infected, inflamed crypts become a definite focus of infection and irritation. Chronic discharge from an infected crypt causes inflammation of the semilunar valves with resulting hypertrophied papillae and papillitis. A constipated hard stool may crack open a crypt or any portion of the poorly nourished, tightly adhered anal canal with a resulting fissure-in-ano. We agree with Abel who states that it is uncommon to find an anal fissure in a patient without a preexisting pecten band.

If, because of increased anal spasm, tightness, or occlusion of a crypt-opening by debris, pyogenic substances become imprisoned in a crypt, an abscess develops which is usually followed by a fistula. Or, because of cracks or fissures, bacteria may pass into the lymphatics or veins of the anal canal and thence to the tissue around the anus, with resulting abscesses or fistulae. Abel theorizes, that because the mucous membrane of the rectum becomes avascular and unhealthy in patients with long-standing pectenosis, secretion of normal mucus is apt to become excessive, bathing the skin with an irritating liquid and the patient suffers from pruritis ani. When no other pathological condition exists in this region, says Abel, the pruritis ani may be cured by performing the operation of pectenotomy. It is interesting to speculate further, says Abel, that sometimes the pecten band may be responsible for the development of carcinoma in the altered mucous membrane of the anorectum.

Personal Observations. In 1933, Miles and

Abel's interesting observations on pectenosis came to the writer's attention, who began to carefully scrutinize the anal canal in all patients presenting proctologic complaints. At first it was difficult to change his conception of increased anal tightness, believing it to be due to anal spasm or hypertrophy of the external anal sphincter. Even palpating the anal canal in pathologic conditions did not convince the writer that a definite band actually existed. The first convincing bit of evidence occurred when a patient presented himself for operation for a fissure situated in the posterior anal canal. Complete relaxation following a local anesthetic, disclosed a definite white band of fibres lying at the base of an old indurated lesion. Formerly our procedure in such cases was a thorough divulsion or stretching of the anal canal, followed by excision of the fissure, the coexisting sentinel pile and the associated crypt. In this case we decided to do a Miles-Abel pectenotomy. The operation of pectenotomy as described by Abel is performed with the patient lying in the right lateral decubitus. The nonlubricated left index finger is introduced into the anal canal and the right posterior quadrant of the anal canal is everted. A little to the right of the midline an incision is made parallel to the long axis of the bowel, the upper end being situated half an inch above Hilton's line and its lower end a short distance below this line. Immediately the mucous membrane and skin have been divided, the white fibres of the pecten band come into view, (Fig. 3). The incision is carried deeper until the complete thickness of the dense fibres of the pecten band is divided and the reddish-brown fibres of the external sphincter are visible. The writer has modified the above procedure in the following manner. The lithotomy position is utilized instead of the right lateral; a bivalve speculum as shown in the illustration is used to expose the anal canal instead of the eversion with the left index finger and the incision is made directly over the fissure or in the mid-posterior line, instead of a little to the right of the mid-posterior line. To our surprise following the cutting of the band the anal canal spread apart with ease, and where only one finger was admitted before incision of the band, four fingers now passed comfortably into the rectum. A crypt passing through the fissure and into a sentinel pile skin tag was excised along with the redundant edges of the fissure. The patient made an uneventful recovery. Since the writer's interest has been aroused in this procedure he has done 105 pectenotomies following the technic outlined above. Our series includes a variety of anorectal conditions associated with pectenosis. The greatest number were instances of cryptitis and papillitis; the second most common condition found was fissure-in-ano; fistula was third; puritis-ani was fourth, and the least number were hemorrhoids with pectonosis. (Table 1.)

TABLE 1.

Cryptitis and Papillitis with Pectenosis	37
Fissure-in-ano with Pectenosis	34
Fistula with Pectenosis	12
Pruritis ani with Pectenosis	13
Hemorrhoids	9
	105

Although Stroud describes the pecten as an area ⅛″ to ½″ wide extending from Hilton's line to the pectinate line, we have found the white fibres of this band to extend slightly below Hilton's line and even more so above the pectinate line, with an average width of about 2 to 3 cms. We have also noted a layer of fascia between the pecten band and the sphincter muscle fibres, not described by Abel.

We have not incised the band a little to the right of the posterior midline as suggested by Abel because we have never understood the rationale of this procedure. Instead, we make our incision over the center of the fissure, wherever it may happen to be located. It must be kept in mind that this area is very vascular and excessive bleeding frequently occurs when the pecten band is incised. In ligating bleeding vessels, one should be careful not to reunite both edges of the incised band as this may defeat the purpose of the operation. Although Abel does not state that his pectenotomy incision should be continued down below Hilton's line and out onto the skin, it is our belief, that in order to insure better drainage the incision should be extended beyond the ano-cutaneous line, (Fig. 3.). In our series of cases we have followed this rule with excellent results.

Since our first pectenotomy we have performed no more divulsions on any anorectal cases. There seems to be practically no need

for such a procedure any more. In fact divulsions seldom ever gave our patients permanent relief from anal tightness.

We always felt that divulsion in most cases produced only temporary relief. Patients would return after several months following anorectal stretching with the same complaint of anal tightness or recurrence of cryptitis or a fissure. We have had only two cases of recurrent anal tightness, since performing the operation of pectenotomy and in both of these patients, a cryptitis was noted along with hemorrhoidal varicosities. It is our impression that pectenotomy tends to maintain indefinitely normal anal tone, but should passive congestion recur for some reason or other it is possible for another pecten band to develop. In cases of pruritis ani, cryptitis and papillitis, the pectenotomy incisions were made in the mid-line posteriorally. In submuco-cutaneous fistulae we have incised the band wherever the fistula happened to be, anteriorally, left or right laterally or posteriorally.

The operation of pectenotomy is usually done first. Following the cutting of the band and the ligation of bleeding vessels, crypts are usually excised, hemorrhoids removed and any other existing anorectal pathology remedied. For the first week following operation, patients experience a slight anal incontinence. However, after 2½ to 3 weeks the wound is completely healed and perfect sphincteric control is established. Discontinuing or diminishing the amount of mineral oil routinely adminstered after anorectal operation, will establish perfect continence during the entire post-operative convalescence. We routinely pass a finger through the surgical fissure produced by the cutting of the pecten band. This is done the day following the operation and every other day until the wound is completely healed. This we believe prevents the coaptation of the cut ends of the band, and promotes healing from the bottom of the wound up. With our series of 105 cases we have only praise for the procedure. It seems to have changed our entire conception of anorectal pathology and treatment. Much better and more permanent results are now obtained then before. It is quite obvious from the above discussion that pectenosis and pectenotomy plays a most important part in a great percentage of common anorectal conditions.

CONCLUSIONS

1. The study of a series of 105 cases of pectenosis and pectenotomy as here presented, corroborates the observations of Miles and Abel.

2. Pectenosis is a common chronic anal condition relieved only by the operation known as pectenotomy.

3. Anorectal divulsion has proven to be unnecessary and is being replaced by pectenotomy in a majority of instances.

4. Pectonotomy is indicated in anal fissure; fistula-in-ano; cryptitis; papillitis; pruritis ani; anal spasm; anorectal constipation; some types of hemorrhoids and in any other anal condition associated with anal tightness.

5. The technic of pectonotomy is described.

30 N. Michigan Ave.

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A STUDY OF FOCI IN THE CHRONIC ARTHRITIC

With Comments on the Use of Specific Vaccines

LEONARD J. MURPHY, M. D.
CHICAGO

The study undertaken covers a period of approximately two and one-half years. The material used was taken from 107 patients, all with well-defined chronic joint lesions. These were private patients referred to our laboratories by the family physician solely for the bacteriological study of the foci and the preparation of a specific vaccine if so indicated. Thirty-two were males and seventy-five females. All except

From The Murphy Laboratories.

1. Solis-Cohen, M.: Accentuating Pathogenic Organisms in Culture by Utilizing Inhibitory Influence of Whole Blood. Brit, J. Exper. Path. 8: 149-154, 1927.

fourteen were ambulatory and came to our laboratories for the study. Ten patients were seen in the homes and four in hospitals. The age range was from twenty-two to seventy-six years. All walks of life were represented.

Routinely the foci studied were the nose, including the posterior nares, throat, feces and urine. If bronchitis or asthma was present in any of these patients the sputum was examined. In a few a tooth was extracted and this was added to the routine study.

The technique of isolating the specific germ

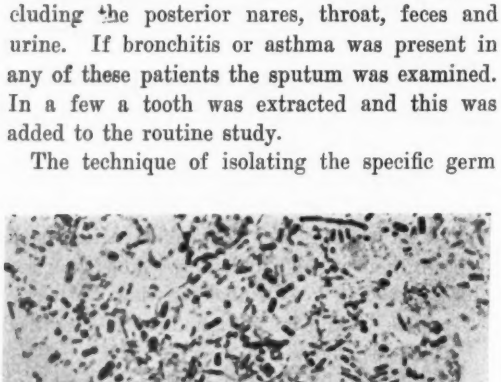

Figure 1. Microphotograph of smear made from original broth culture of feces after 24-hour incubation. Many organisms are seen.

was that outlined by Solis-Cohen.[1] Our vaccines were prepared from the bacteria which survived the action of the whole fresh blood.

The Bacteriological Study of the Foci. *Nose:* 100% of the patients, 107, showed a mixed growth from the nose in the original culture. By the pathogen-selective method only fifty, or 47% of these patients showed a growth from the nose. Streptococcus was found in six patients, staphylococcus in 43, and both streptococcus and staphylococcus were found in the nose of one. Four of the fifty showed the nose as the only source of infection.

Throat: 100% of the patients, 107, showed a mixed growth from the throat in the original culture. By the pathogen-selective methods, 84 or 79% showed a growth from the throat. Streptococcus was found in 81 throats, and staphylococcus was found in three. Twenty-four of the 84 patients showed the throat alone as the focal source of infection.

Feces: 100% of the patients, 107, showed a heavy growth from the feces in the original culture but only 26 or 24% showed growth by the pathogen-selective method. Streptococcus was recovered from the feces of seventeen patients, staphylococcus from three, and colon bacillus from six. Four of the 26 revealed the feces as the only source of infection.

Urine: 61% of the patients, 65, showed a growth from the urine in the original culture, but only 22, or 34% showed a growth by the pathogen-selective method. Streptococcus was found in the urines of eight patients, staphylococcus in 13, and colon bacillus in the urine of one. Two of the 22 patients showed the urine as the only focus of infection.

Briefly, in the original cultures, 65 patients showed growth of organisms from all four foci studied, and all the patients, 107, showed growth of organisms from three foci: nose, throat, and feces. By the pathogen-selective method, 36 patients, or 34% showed growth from one focus only, throat predominating. Fifty-one patients, or 47%, showed growth from two foci, nose and throat predominating. Fourteen patients, or 13%, showed growth from three foci, and three patients, or 2%, showed growth from all four foci. The patients showing growth from all four foci were bedridden and markedly debilitated. Their blood contained no complement.

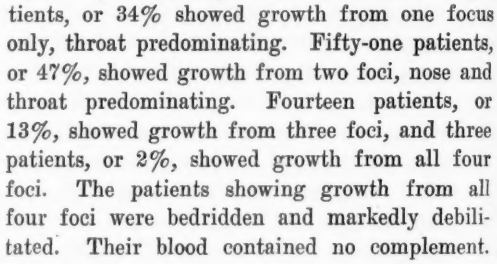

Figure 2. Microphotograph of smear made from same feces after 24-hour incubation in patient's whole fresh blood. A single strain of streptococci is seen.

Of special interest was the study of three patients, whose original cultures showed growth from all four foci, but no organisms lived in their whole fresh blood. Hence, no vaccines were made for these patients.

The two cuts illustrate microscopic findings before and after the pathogen-selective test.

Specific Vaccines. Specific vaccines for these patients were prepared from the organisms obtained by this method. Eighty-one of these vaccines were standardized to the individuals in our laboratories and the patients were then returned to the physician for treatment.

Twenty-three vaccines with specified dilutions

were sent to the physician without being standardized to the patients by us.

Four patients were turned over to us by their physicians *carte-blanche,* and we were asked to give our vaccine as we deemed fit, and report results. Data concerning the other patients for whom we made the specific vaccines are now being collected from the referring physicians.

The charts of the four patients are presented below:

Miss E. L., Nurse, aged 25 years. Referred to us February 20, 1934, with the following story: Right peritonsillar abscess six years ago. One year later pain developed in right wrist. This pain was periodic until three years ago, when pain developed in both wrists and has been constant ever since. No other joints were involved. At that time both wrists were markedly swollen and deformed, and very painful. She was unable to hold thermometer or to wring dressings from hot solutions.

By the pathogen-selective method, a staphylococcus albus was recovered from the nose, and a streptococcus hemoliticus from the throat. Vaccines were prepared from each organism and were given alternately every 3-4 days until each was standardized to the patient. Then these were combined in the proper proportions and given once per week for one year. At the end of one year, most of the pain had disappeared, and hands and wrists were much stronger. The time interval was lengthened to two weeks, and treatment continued for six months. Then the time interval was changed to once per month. On November 17, 1935, she was dismissed. Her last visit was March 23, 1936. She has no pain, can use hands normally, and is doing all routine work required of nurses.

Mrs. H. E., Housewife, aged 30 years, was referred to us August 22, 1933, with the story that at the age of eighteen she had fallen and injured her right hip. Five months later pain developed in the hip. At the age of nineteen she came to the United States. She married at the age of twenty-three. About this time pain developed in almost all of her joints. She attributed this pain to our damp climate. She became pregnant in 1928, and all arthritic symptoms disappeared. She was totally free of arthritic pains for eight months after delivery. By the ninth month postpartum, pain developed in the spine, and soon thereafter all joints became involved. She had to give up her household duties because of pain and weakness. At the first visit her feet were so swollen and painful that she had to wear old shoes with many slits throughout. Wrists, knees, and ankles were beginning to show deformities.

By the pathogen-selective method we isolated a streptococcus viridans from the throat. A vaccine was prepared, and she received injections twice per week for eight weeks. At the end of eight weeks the swelling had gone from the feet. All joints were more relaxed, and she had a greater range of motion. The time interval was increased to one week. She became pregnant in March, 1934, and was given an injection once per month until the end of the eighth month. She was delivered in November, 1934. She then returned to us for treatment, December 14, 1934. No symptoms were present, but she was advised to come every two weeks for winter and spring. On June 3, 1935, she was dismissed and instructed to return in the fall. She returned August 8, 1935, with some pain in one toe. She was given an injection every other week for four doses, and then dismissed with instructions to return if symptoms developed. She returned March 26, 1936, because of a little stiffness in shoulders on arising in the morning. She was given one injection.

The baby is now eighteen months old. There has been no return of true arthritic symptoms. She has cared for the baby alone, does all her household duties, and is living a typical normal life of the average housewife.

Mr. M. O., truck driver and buyer for meat packer, aged 35 years. In and out of refrigerator many times per day. Referred to us May 31, 1934, complaining of pain, weakness, and limitation of motion in left shoulder.

TABLE 1. BACTERIOLOGICAL FINDINGS IN FOCI OF TWENTY PATIENTS

Patient Number	Number of Organisms Found in the Original Broth Culture				Number and Kind of Organisms Found by the Pathogen-Selective Method			
	Nose	Throat	Feces	Urine	Nose	Throat	Feces	Urine
2	3	3	Many	0	1 Staph.	1 Strep.	0	0
6	3	2	Many	2	0	1 Strep.	0	1 Strep.
14	2	3	Many	2	0	0	1 Strep.	0
15	3	2	Many	1	1 Staph.	0	0	0
20	3	2	Many	1	1 Staph.	1 Strep.	1 Strep.	1 Strep.
22	3	2	Many	1	0	0	1 Strep.	0
29	2	3	Many	1	0	1 Staph.	0	0
33	3	2	Many	1	1 Staph.	0	0	0
36	2	3	Many	0	0	1 Strep.	0	0
41	2	3	Many	1	0	0	0	0
52	3	2	Many	2	0	0	0	1 Staph.
53	3	2	Many	0	0	1 Strep.	0	0
54	3	2	Many	2	1 Staph.	1 Strep.	1 Staph.	1 B. Coli
74	3	2	Many	1	0	1 Strep.	0	0
86	2	3	Many	2	1 Staph.	1 Strep.	0	1 Strep.
87	2	3	Many	1	0	1 Strep.	1 Strep.	0
89	2	2	Many	0	1 Staph. 1 Strep.	0	0	0
90	3	3	Many	1	0	0	0	0
108	2	3	Many	0	0	1 Strep.	1 B. Coli	0

This condition had been present for three years. He had had to lay off from work occasionally, and had been unable to dress himself.

By the pathogen-selective method, we isolated a staphylococcus albus from the posterior nares. A specific vaccine was prepared, and he was given an injection once per week for two months. The pain had now practically disappeared, and strength was returning to the muscles of the shoulder, hence on August 2, 1934, he was instructed to come every two weeks. On September 27, 1934, he went on a buying trip and returned to us November 11, 1934. His shoulder had given no trouble, but he had developed a slight pain in the left heel, during the past twenty-four hours. He was given an injection and instructed to return when and if symptoms returned. We saw him January 3, 1935, January 10, 1935, March 21, 1935, June 6, 1935, and February 4, 1936. His last visit was March 10, 1936. He is now working every day. Can dress himself and has normal use of his shoulder, with only an occasional pain preceding a storm.

Mrs. J. P. V., Housewife, aged 52 years, was referred to us November 8, 1934, complaining of pain in both knees, both ankles, and the right foot. This pain began four years ago. Three years ago pain began in the left hip, and for the past two years, both hands and wrists have been painful and swollen. She had grown progressively worse, and was unable to do her own housework. Could scarcely get up and down stairs. Was awakened nightly with severe cramps in feet. The grip of the right hand was about 35% normal, and the left about 50% normal.

Staphylococcus albus was isolated from the nose by the pathogen-selective method. Standardization of the vaccine was begun November 19, 1934, and she was given two injections per week for six months. By this time her general condition was much improved and the interval between treatments was lengthened to one week. On July 19, 1935, she reported that she had walked around nine holes of golf. In October, 1935, she was instructed to come every two weeks, and in January, 1936, instructed to come once per month. Last visit, March 26, 1936. She now sleeps all night without cramps, and she negotiates three flights of stairs with ease. Goes on shopping tours for entire day. Is doing all her housework. She was dismissed with instructions to report once or twice per year.

Conclusions:

1. Original cultures may fail to isolate the specific germ in some patients with chronic arthritis, whereas by making use of the pathogen-selective method, the patient's whole fresh blood may inhibit the growth of non-pathogenic bacteria, thus allowing the etiological organism to grow out in pure culture.

2. If no organisms are isolated by the pathogen-selective method, it is probable that said focus is not giving rise to the joint symptoms.

3. Two of the patients whose charts are given (Mrs. J. P. V. and Mr. M. O.) were given vaccines made only from staphylococcus albus. Both patients made satisfactory recovery. This fact would suggest that organisms other than streptococci may be responsible for some cases of chronic arthritis.

4. Conclusions relative to treatment cannot be drawn from a series of only four patients, but in view of the fact that all four showed a practical return to normal after years of progressing disabilities, we feel justified in recommending the method. Further we feel justified in predicting that if such a study is made, and specific vaccine treatment started early, much crippling deformity may be prevented.

4753 Broadway.

THE CIRRHOSIS OF THE LIVER AS A SURGICAL PROBLEM

GUSTAV ZECHEL, M. D., F. A. C. S.
Assistant Professor of Anatomy and Associate in Surgery, College of Medicine, University of Illinois
CHICAGO

For the surgeon the cirrhosis of the liver is a greater diagnostic than a therapeutic problem, for the early recognition is more difficult than the therapeutic management. The majority of the cases usually are not diagnosed until after the onset of ascites. Generally the patients suffer for a period of months or years from general abdominal symptoms which are explained in different diagnostic directions; but beginning liver cirrhosis is not thought of, despite the negative outcome of all kinds of tests, especially resultless x-ray examination of the gastrointestinal tract, and such cases are labeled as chronic appendicitis, cholecystitis, colitis, silent peptic ulcer, or any other chronic abdominal disease, until the situation is cleared by the gradual or sudden appearance of ascites.

DIAGNOSIS

The study of 100 cases of liver cirrhosis at the Research and Educational Hospital of the College of Medicine, University of Illinois, and the Ravenswood Hospital, Chicago, revealed the following factors pertaining to diagnosis:

Distribution according to sex, age and etiology, especially alcoholism.—Figures 1 and 2 show that 73% of all the patients with liver cirrhosis

Read before the Section on Surgery, 86th Annual Meeting, Illinois State Medical Society, Springfield, May 20, 1936.

were male, and that the majority (76%) had an age between 41 and 65 years, the maximum occurring between 51 and 60 (*Fig.* 1). The causes were alcoholism, lues, cardiac lesions and cancer; only such cases of cancer of the liver have been included which were complicated by the other etiological factors mentioned (Fig. 2). The total number of cases showing abuse of alcohol as the only possible cause, or as a con-

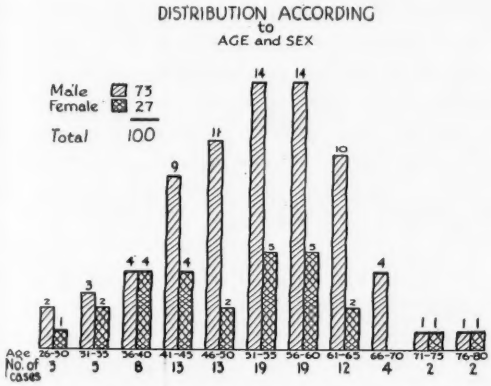

Fig. 1. 76 per cent. of the observed cases of cirrhosis of the liver occurred between 41 and 65 years of age.

tributing factor, amounted to 59, of which 52 cases (or 89.9%) were males and 7 (or 11.1%) were females (*Fig.* 2). The number undoubtedly would be higher, considering the fact that in 21 cases it was not possible to determine the real etiology because the time of observation was too short. It must also be considered that in some cases of cardiac lesions the abuse of alcohol may be the cause of cardiac disturbances.

Significance of abstinence.—Many of the patients with clinically fully developed symptoms of liver cirrhosis are not subject to abuse of alcohol at the time of the first examination, because they have lost completely their tolerance to alcohol, thus making a virtue of necessity. It is necessary, therefore, to question the patient not only about his present, but also about his past habits. It is possible that, once started, the development of cirrhosis progresses even some time after the cessation of the primary cause. This may explain the failure of many cases to respond to inforced abstinence. Table 1 illustrates this point numerically.

Duration of illness.—Most of the patients complain of general abdominal symptoms for a certain period of time before their illness makes necessary their consultation with a physician. 51% were ill from one to twelve months before the first consultation (Table 2), 18% from one to ten years, and 3% over ten years. Only 9% gave a history shorter than one month. In 13% there was evidence that patients who had "gastric" or "abdominal" symptoms became severely ill when tested by the trial of physical emergency. A common "cold," muscular strain, or sudden alcoholic orgy, previously sustained without any sequels, was sufficient enough to bring about a functional failure of an organism deprived of all its reserve power (Table 3).

Gastric symptoms.—Cirrhosis of the liver does not show, during its stage of development, any typical symptoms. It belongs to that group of diseases which may simulate the symptoms of any gastrointestinal pathology, and can mislead gravely the hasty examiner. 71% suffered from "gastric" symptoms, usually from several, as demonstrated in Table 4.

Respiratory embarrassment.—The frequently occurring circulatory disturbances, such as cardiac lesions, ascites with displacement of the

ETIOLOGICAL DISTRIBUTION ACCORDING TO AGE

	26-30	31-35	36-40	41-45	46-50	51-55	56-60	61-65	66-70	71-75	76-80	Total	
Alcoholism	♀	♂		♂♂♂ ♀	♀	♂♂♂♂♂ ♀	♂♂♂♂♂♂	♂	♂	♂		34 6	40
Lues		♂	♂			♂ ♀♀	♂					4 2	6
Cardiac Lesions	♂	♀	♀♀	♂	♂	♀	♀		♂			4 5	9
Alcoholism and Cardiac Lesions			♂	♂♂	♂♂	♂ ♀	♂	♂				8 1	9
Alcoholism and Lues		♂		♂	♂♂	♂	♂					6	6
Alcoholism and Cancer			♂			♂						2	2
Alcoholism Lues and Cancer								♂				1	1
Alcoholism Lues and Cardiac Lesions			♂									1	1
Abuse of alcohol denied					♀		♂ ♀♀		♂			2 3	5
Cause not recorded	♂	♀	♀♀	♂ ♀		♂♂♂ ♀	♂♂ ♀♀	♂♂ ♀	♂	♀	♂ ♀	11 10	21
Total	♂ ♀ 2 1	3 2	5	4 4	8	9 4	13	11 2	13	14 5	19	14 5	19	10 2	12	4 4	1 1	2 1	2	100	

Symbols in solid type indicate alcoholism

Fig. 2. Etiological distribution of cirrhosis of the liver according to age and sex. ♂ male, ♀ female.

diaphragm, or generalized dropsy, explain that 48% of the patients had respiratory embarrassment. In several cases it was the main complaint of the patients who failed to notice their developing ascites and thus misled the questioning physician. Only by careful physical examination was the real cause found (Table 5).

Circulatory disturbances.—The dilatation of the abdominal veins was not found as frequently

as should be expected from the importance of the "Caput Medusae" stressed so emphatically by the text-books. Among the 15% of cases showing dilated abdominal veins, only few could be characterized by that term. The frequencies of peripheral circulatory disturbances are computed in Table 6. The patients usually observe the swelling of the feet sooner than the ascites because they mistake the latter for obesity. Beginning ascites is very difficult to distinguish, because small amounts of fluid in the abdominal cavity are impossible to recognize by manual examination. The minimum of fluid, necessary for its diagnostic recognition, varies with the weight of the patient: a larger amount of fluid can remain undiagnosed longer in obese patients than in thin or emaciated ones.

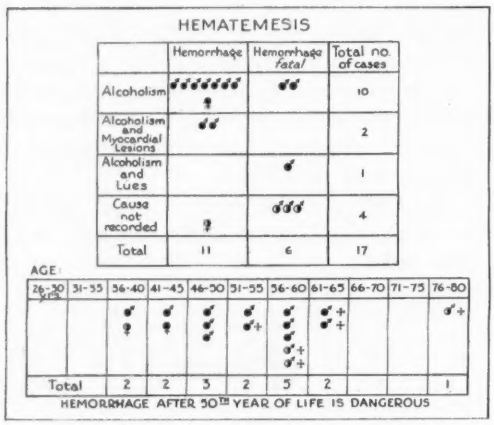

Fig. 3. Hematemesis of patients with cirrhosis of the liver occurred in 17 cases, in 6 of which the hemorrhage was fatal.

Hematemesis.—In seventeen cases hematemesis occurred, usually caused by the rupture of dilated lower esophageal or gastric veins. Thirteen of these cases had a record of alcoholism (Fig. 3). The highest frequency was found between 56 and 60 years of age. It is interesting that the six cases which died from anemia caused by hematemesis were all over 50 years of age, which may be explained by changes in the vascular wall: rigidity, deficiency of the constricting musculature (Fig. 3). It is obvious that hematemesis, when occurring in an early stage of cirrhosis, may lead to a diagnosis of gastric ulcer or cancer; it has to be admitted that in several instances of the whole group of the hundred cases, a few were complicated by a gastric ulcer or cancer.

Herniations—In 14 cases a rupture in the abdominal wall was recorded (Table 7), half of that number consisting of umbilical hernias; this is contrary to the usual occurrence of hernias in which the inguinal type prevails.

Nervous symptoms.—The changes of hepatic functions, as expressed in disturbances of metabolism or lack of detoxication of injurious substances, do not exist without affecting the nervous system. These appear mostly as subjective symptoms but are very significant in some cases, because they may be the first complaints of the patient. The most frequent are dizziness and fainting spells, but headaches, feeling of weakness, tremors and paresthesias are also observed commonly (Table 8).

Loss of weight.—In 41 cases a significant loss of weight was recorded, which developed in the majority of them within one year. The loss of weight can be compensated by the accumulation of fluid which often brings the weight of the emaciated patient above the highest weight he ever had when enjoying health (Table 9). When there is an insignificant accumulation of fluid, the striking loss of weight, especially when associated with "gastric" symptoms or hematemesis, can easily lead to a diagnosis of malignancy.

Subnormal temperature.—Since the liver occupies an important place among the heat-generating organs, it is obvious that the damage to its tissue will cause a lowered temperature, as was found in 44 cases. In some of these cases it constantly remained below normal. How far below normal such a curve can go is shown in Figure 4. To the man who is accustomed to observing a temperature curve when it is above normal, it is recommended that he turn the figure upside down and then read the curve as a fever-curve, using the numerals on the left margin of the chart.

Low count of red blood corpuscles.—As indicated in Figure 5 most of the cases (61) had less than 4.2 millions of red blood corpuscles, if it is permissible to consider this the minimum level of the normal blood count.

Size of liver.—In 73 cases the liver was enlarged to such an extent that the enlargement was palpable at the time of physical examination (Table 10). It should be noticed, that the enlargement can be recognized in 3 different direc-

tions: downward; or to the left and above the umbilicus; or upward, according to the physical constitution of the patient. In the latter case the enlarged liver is hidden in the dome of the diaphragm, so that it protrudes below the costal margin only to the normal limits; however, in such cases, the lower border of the right lung

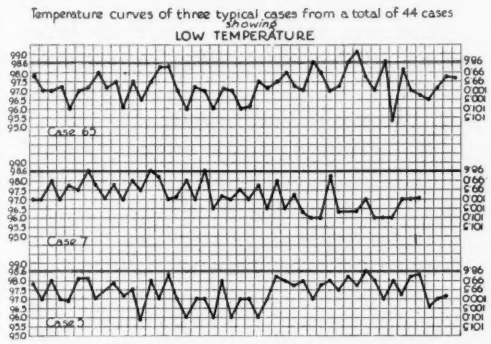

Fig. 4. The temperature of patients with cirrhosis of the liver was abnormally low in 44 cases; by reversing the chart a comparison with a reciprocal fever curve is made.

is found to be unusually high upon percussion and auscultation.

TREATMENT

The treatment of the cirrhosis of the liver has two aims. In the first place, the parenchymal compensation of the liver has to be attained: 1, by a high carbohydrate diet to increase the glycogen storage in the liver because such a liver has a higher resistance to toxic substances and a greater regenerative capacity; 2, by preventing hunger which is injurious to the liver; 3, by a low protein diet, since the power of the liver to detoxicate protein split products is diminished; 4, by abstinence from condiments and alcohol; and 5, by medication with insulin, and by extracts of liver and thyroid. Secondly, the vascular compensation has to be maintained or restored: 1, by an anti-ascitic diet, that is, the restriction of the intake of water and salt (Keith-Smith); 2, by diuretics of the mercurial group as calomel, novasural or salyrgan, assisted by ammonium chloride, and 3, by surgical measures.

There are two types of surgical procedures to relieve patients who suffer from an ascites caused by cirrhosis of the liver: one is the simple paracentesis, and the other any plastic operation inducing the formation of a new collateral connection between the portal and systemic veins, or facilitating the drainage of the ascitic fluid either to the outside or to some place in the body which may have greater resorptive power.

The first paracentesis which is done is indicated for diagnostic reasons, or to relieve the patient when found in great distress caused by an excessive accumulation of abdominal fluid, producing displacement of the diaphragm and hence cardiac or respiratory embarrassment, or interference with renal functions. The repetition of the paracentesis is justified only by the poor operative risk to be expected because of the patient's general condition. Otherwise, resort should be taken immediately to a collatero-plastic operation at the time a definite diagnosis is established and when the patient still is able to respond to medical and dietetic procedures, and not after they have failed and the patient's power of restoration has collapsed. Performed at an early stage, the collatero-plastic operations are of no danger to life. It is useless to operate

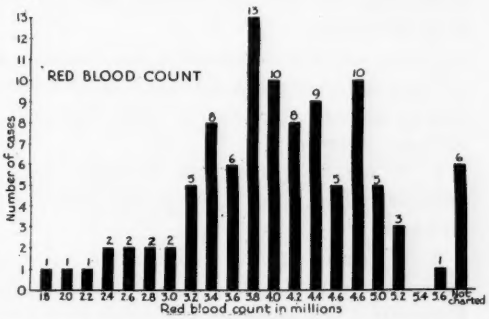

Fig. 5. In 61 cases of cirrhosis of the liver the red blood count was below 4.2 millions.

on patients in moribund condition, or patients close to this stage.

The basic reason for a collatero-plastic operation is the fact that ascites fails to develop in many cases of cirrhosis, because of the congenital existence of a sufficient collateral circulation between portal and systemic veins, or because adhesions form spontaneously in the peritoneal cavity, usually between the omentum and the abdominal wall. In such cases, diagnosis of the cirrhosis of the liver is difficult therefore. The absence of the two factors just mentioned perhaps accounts in the majority of the cases for the development of the ascites. The occasional

failure to produce ascites in dogs by gradually ligating the portal vein in two or more stages proves only the presence of numerous collaterals but not the harmlessness of the obstruction of the portal vein; even though the diversion of a part of the portal blood into the systemic circulation is harmless.

There are different channels of natural collateral circulation between the portal and the systemic circulation:

1. V. umbilicalis—V. epigastrica inferior or superior.

2. V. gastrica sinistra—Vv. oesophageae inf.

3. V. hemorrhoidalis superior (V. mesenterica inferior).

V. hemorrhoidalis media (V. cava inferior).

4. Retzius' anastomosis in the retraperitoneal space between the veins of the pancreas, duodenum, colon transversum and the tributaries of the azygos and hemiazygos veins.

The spontaneous adhesions of the omentum, found at the postmortem examination of cases with cirrhosis of the liver, induced the surgeons to stimulate the formation of adhesions by operative procedures.

These operations encourage the development of three different collateral channels by the fixation of the omentum to the abdominal wall or between its layers:

1. V. portae—gastric and omental veins—V. epigastrica superior—V. thoracalis lateralis—V. axillaris.

2. V. portae—gastric and omental veins—V. epigastrica superficialis—V. saphena magna—V. femoralis.

3. V. portae—gastric and omental veins—V. mammaria interna—Vv. intercostales.

The adhesions are the sites of newly developing collateral blood- and lymph-vessels; the adherent areas are naturally excluded from the secretion of fluid into the abdominal cavity, thus diminishing the rate of its formation. Some surgeons speak, in this connection, of the "obliteration" of the abdominal cavity.

Numerous methods have been devised by different authors to establish a collateral circulation or to divert an ascites:

1. *Visceropexy, Omentopexy, Epiplopexy:*

(a) The scrubbing of the liver surface and the opposite parietal peritoneum, and their union by several sutures (Talma).

(b) Fixation of the omentum to the inner surface of the anterior abdominal wall (Drummond and Morison).

(c) Fixation of the omentum between the liver and the ventral abdominal wall and the diaphragm (Turner).

(d) Anchoring of the omentum in the subcutaneous space after its eventration through a middle line incision (Schoenbauer and Narath).

These four methods are used more frequently for the relief of ascites than any other of the following:

2. *Decrease of blood supply:*

(a) Ligature of gastric arteries (Flerow).

(b) Ligature of mesenteric arteries (Mayo).

3. *Venous anastomosis:*

(a) Between V. portae and V. cava inferior, known as Eck's fistula (Franke, Bier).

(b) Between V. mesenterica inferior and V. spermatica interna (ovarica) (Villard and Travernier).

(c) Between V. mesenterica superior and V. cava inferior (Krestowski and Bogaraz).

4. *The direct diversion of the ascites fluid:*

(a) The drainage into the urinary bladder through an opening in the fundus which brings about the danger of peritonitis, as well as because of the escape of urine into the peritoneal cavity (Dembrowsky).

(b) The drainage into the pleural cavity through openings made into the diaphragm (Roderich, Sievert).

(c) The insertion of foreign bodies, as silk thread, T-shaped rubber tubes, canulas, etc., between the peritoneal cavity and the subcutaneous space.

(d) Diversion into lumbar musculature by removing the lumbar peritoneum (Kalb).

(e) Removal of the lumbar peritoneum and musculature through an abdominial incision resulting in a complete cure of the ascites, but causing a lumbar hernia (Kirschner).

(f) Removal of the peritoneum from the radix of the mesentery in order to make possible a resorption of the fluid by the lymphatics of the mesentery.

(g) The implantation of the proximal end of the severed V. saphena magna into the peritoneal cavity (Ruotte, Gontermann).

Of all these different procedures only Talma's, Morison's, and Schoenbauer and Narath's methods survived. In order to safeguard a good result, the indication for a collatero-plastic opera-

tion should follow as soon as the diagnosis is established and the operation should be performed still during the period of parenchymal compensation of the liver. Besides the decompensation of the liver parenchyma, there are the same general contraindications as for any other laparotomy. The following points have to be observed in performing the plastic operation:

1. No tension on the omentum;
2. Areas of the omentum, containing large vessels, must come into contact with the subcutaneous tissue (Schoenbauer-Narath) or parietal peritoneum (Talma, Drummond-Morison);
3. Prevention of obstruction or thrombosis of the large vessels;
4. Prevention of necrosis of the omentum;
5. Prevention of herniation.

These requirements are fulfilled by the method devised by the author and published elsewhere.

When the omentum has been transplanted into the subcutaneous space one can judge the success of the operation from the amount of dilated skin vessels around the scar in a few weeks. During that period several paracenteses may be necessary until a successful collateral circulation developed. It must be borne in mind that, even when the ascites is cured, the damage of the liver remains and that the further progress of detrimental changes in the liver is only checked or retarded, depending upon the individual constellation of factors involved. That the future of the patient has to be judged accordingly is obvious.

Summary

1. The differential diagnosis of cirrhosis of the liver in its developmental stage is extremely difficult, contrary to the ease of diagnosis when ascites appeared.

2. The beginning cirrhosis of the liver causes symptoms which can imitate other diseases: emesis, hematemesis, jaundice, low blood count, respiratory embarrassment, nervousness, loss of weight, etc.

3. The history of the patient must carefully be taken because the patient might have abstained from the use of alcohol, the most important cause, at the period of the first examination.

4. Only early recognition of the disease and the early performance of a collatero-plastic operation may bring about a prolongation of the life of the patient.

5. Neither surgical nor medical treatment, including abstinence, can restitute the liver to normal conditions; they only either stop or retard further deterioration, which explains the necessity of early recognition of the disease, because it is of little value to the patient to try to stop an irreversible process in a stage that has already progressed far.

TABLE 1. ALCOHOLISM

Total Number of Cases: 59

Abstinence Again Before Onset of Illness up to:	
1 year	in 7 cases
2 years	in 3 cases
5 years	in 5 cases
10 years	in 1 case
29 years	in 1 case
Total	17 (28.8%)

TABLE 2. DURATION OF ILLNESS

(Before first consultation)

Time	Frequency
1- 2 weeks	7
2- 4 weeks	2
1- 2 months	16
2- 6 months	20
7-12 months	15
1- 2 years	6
2- 5 years	7
5-10 years	5
Over 10 years	3
Not recorded	19
Total	100

TABLE 3. "SUDDEN" SEVERE AGGRAVATION OF CHRONIC "GASTRIC" OR "ABDOMINAL" SYMPTOMS

(By some extrinsic factor)

Cold or "Flu"	8
Muscular Strain (Lifting)	3
Great Abuse of Alcohol in One Session	2
Total	13

TABLE 4. GASTRIC SYMPTOMS

Total Number of Cases: 71

	No. of Cases
Anorexia	31
Pain in Middle or Right Epigastrium	29
Belching	11
Nausea	13
Vomiting	21
Gastric Distress After Meals	10
Fullness ("Bloated") in Epigastrium	11
Flatulence	2
Constipation	14
Diarrhea	2
Jaundice	21

TABLE 5. RESPIRATORY EMBARRASSMENT

	No. of Cases
Without Cardiac Lesions	33
With Cardiac Lesions	15
Total	48

TABLE 6. CIRCULATORY DISTURBANCES

Total No. of Cases: 68

	No. of Cases
Ascites	61
Swelling of Lower Extremities	38
Swelling of Scrotom	13 (of 73 males)
Dilatation of Abdominal Veins	15

TABLE 7. HERNIAS

Umbilical	7
Diastasis of the Recti	3
Inguinal	4
Total	14

TABLE 8. NERVOUS SYMPTOMS

Total: 37 Cases

Headache	11
Dizziness or Fainting	23
Weakness	12
Tremor or Paresthesia	12

TABLE 9. LOSS OF WEIGHT

Pounds	Frequency
Up to 10	4
11-20	7
21-20	7
31-40	4
41-50	3
51-60	2
61-70	1
71-80	1
Not recorded	12
Total	41

Time	Frequency
Up to 3 mos.	9
4- 6 mos.	10
6-12 mos.	8
1- 2 yrs.	2
Not recorded	12
Total	41

TABLE 10. SIZE OF THE LIVER

Enlarged	73
Not enlarged	16
Not recorded	11
Total	100

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G. Zechel: Peritoneal Sutures in Narath and Schönbauer's Modification of Talma's Operation. Am. J. Surg., 32: 101-102: 1936.

DISCUSSION

Dr. Warren Cole, St. Louis, Mo.: Dr. Zechel has brought to our attention many instructive and interesting points; some of them are a bit contrasted to the routine text-book teaching, but correctly so. Pathologically, the vast majority of cirrhoses of the liver are of the atrophic (Laennec) type, but not infrequently, cirrhosis is encountered in the presence of a large liver which may or may not be classified as Hanot's cirrhosis. It has often been suggested that cirrhosis of this type is a precursor of the atrophic type, but the indecision and difference of opinion merely emphasize the fact that our knowledge of the pathogenesis of cirrhosis is entirely inadequate. If we knew more about the etiology, treatment would obviously be simplified.

The diagnosis is difficult because the symptoms and manifestations of cirrhosis are so variable. They are similar to the manifestations of so many other diseases in that they consist primarily of dyspepia and mild abdominal pain. As we know, this syndrome may be produced by any number of diseases, including cholecystitis, peptic ulcer, and even appendicitis. A few years ago we hoped that the various functional tests which were being brought to our attention might be of value in diagnosis of cirrhosis of the liver. They have not been very helpful. Because of the multiplicity of the function of the liver, I would prophesy that they probably will never be entirely satisfactory from the diagnostic standpoint. A few of the tests, like the galactose tolerance test, dye tests and a few others, will reveal abnormal findings in cirrhosis, but so frequently the results of the tests are indeterminate. Even when positive results are obtained, we must still remember that there are other diseases of the liver in which such abnormal results will be obtained. This implies that the tests are in reality tests of functions and not of a specific disease.

Of the operative procedures, I myself prefer that which Dr. Zechel has classified as the Narath operation and which is sometimes known as the Schiassi operation. I do not know which operative procedure Dr. Zechel advises, except that he has offered a slight modification in technic which he unfortunately did not have time to discuss. In the Narath operation, the attachment of the omentum to subcutaneous tissue should allow an absorption of the ascitic fluid by the subcutaneous tissue, as well as encourage the development of collateral circulation. However, if the opening is too loose a hernia will result.

One other feature in the operative line, which might be helpful, in that described by Holman. Two or three years ago he suggested burying the spleen in the tissue beneath the peritoneum of the posterior abdominal wall, thereby setting up a collateral circulation with the caval system. However, I have had no personal experience with the operation.

As Dr. Zechel has stated, the problem of surgical as well as medical treatment of cirrhosis is a difficult one. Omentopexy may at times be very beneficial in the relief of ascites, but very often, indeed, the procedure offers no improvement. Obviously, effort should be made to pick only isolated cases for operation, but unfortunately an accurate approximation of the most suitable cases for operation is not possible.

Dr. George deTarnowsky, Chicago: I think Dr. Zechel is to be doubly complimented, first for the excellent presentation and second, for his courage in bringing up this dismal subject. It has been the bugbear of medicine and surgery. My contribution to his paper will be to show a few slides which describe a fistula which I worked out with Professor Mathews of the University of Chicago and later of Loyola University.

To date I have only been able to try it on one patient, who had had unfortunately a number of paracenteses and a Talma operation. When I attempted to do the operation I ran into such a mass of adhesions that I had to give it up. I think if we get suitable cases we can use it in the human being. It is well worth trying. However, I would advise anyone who wishes to attempt it to first work out the operation on dogs and fresh cadavers. At the Cook County Hospital Professor

Jaffé has been kind enough to give me fresh cadavers on which to do the operation.

Dr. Gustav Zechel, Chicago (in closing): I wish to express my thanks to Dr. Cole and Dr. deTarnowsky for their discussions. The essential fact in the technic of Narath is to protrude a piece of free omentum through the incision and anchor it underneath the skin to the subcutaneous tissue.

There are a few points in the technic advocated in my paper published elsewhere that must be observed: First, avoiding strangulation of the omentum; second, preventing circulatory disturbances in the protruding part of the omentum; third, preventing the formation of a herniation.

A NEW TREATMENT FOR PARALYTIC ILEUS

MATTHEW E. UZNANSKI, M. D.,
CHICAGO

Paralytic ileus is always a grave condition whether the distention is moderate or extreme, or whether it affects part or all of the intestinal tract. It is a disconcerting factor which many times must be met by the most careful of surgeons—operators who make every effort to handle the tissues as little and as delicately as possible, and to apply the minimum of pressure on the bowels when using packs. During the years in which abdominal surgery has become a major specialty various therapeutic agents have been suggested to treat and to abort this condition including enemata of such an obnoxious drug as asafetida.

The alkaloid of physostigmine, eserine, is of value when such a condition follows in the wake of abdominal section or labor. Unfortunately, however, its use here is attended too often by such unpleasant by-effects as slowing of the heart, dyspnea, depression of respiration, bronchospasm, miosis.

In a series of animal experiments, Stedman and his coworkers demonstrated that basically compounds possessing miotic activity are substituted phenylesters of monoalkyl-carbamic acids, and that the activity of such compounds are greatest when the radical is a methyl group, that is a compound similar in structure to eserine. Much work has been done on urethanes of this type. Studies by Aeschlimann and Reinert resulted in the synthesis of the dimethylcarbamic ester of 3-hydroxyphenyl-trimethylammonium methylsulphate, a compound resembling eserine in many of its characteristics. It has been demonstrated pharmacologically that the new substance differs from eserine principally by a more pronounced action upon peristalsis, while its effect upon miosis is of little moment, and cardiac by-effects are practically non-existent.

The substance has been made available under the trade name of "Prostigmin." It comes in two concentrations, ampuls delivering 1 cc of a 1:4000 solution for use as a prophylactic against paralytic ileus, and ampuls delivering 1 cc of a 1:2000 solution for treatment of the established condition, as well as for use in bladder atony and in non-surgical cases.

Among the earlier papers dealing with the pharmacology of the drug is that of Rothschild. He found that prostigmin will check the slow decrease observed in the tonus of the isolated small guinea-pig intestine under the influence of papaverine. Under similar conditions, eserine will cause a great variation of tonus which will remain below its initial level, while with prostigmin it will be restored almost to the normal point.

Bross and Kubikowski observed that a 1:7,000,000 solution of prostigmin causes a slight contraction of the excised rabbit or guinea-pig bladder. A concentration of 1:1,400,000 causes a strong and prolonged contraction of the bladder.

In the neighborhood of 125 papers have so far appeared in the literature concerning the use of prostigmin in clinical application. The greater number of these refer to its use postoperatively for paralytic ileus, some to its effectiveness in bladder atony, and a few to its use in medical cases. In the recorded cases the 1:2000 solution was employed. Recently the drug has been recommended for prophylaxis against paralytic ileus. For this purpose a 1:4000 solution is employed, the contents of an ampul being injected every 6 hours, starting the day before surgery and continuing until the second or third postoperative day.

Bardenheuer uses prostigmin for the relief of postoperative intestinal atony and also as an effective treatment in chronic obstipation. Beck reports the use of the drug in 220 cases. He found prostigmin to have a marked effect upon the intestine but to be without influence on the heart. In some cases he uses the drug every second day as a prophylactic and to maintain peris-

talsis. Bross and Kubikowski report seven cases in which the drug was effective in postoperative retention of urine.

de Saint-Georges uses prostigmin in postoperative intestinal atony and also in purely medical cases. Gaenssle states the drug is without the unpleasant effect upon the heart common to eserine. Junet reports the use of prostigmin in 200 cases without observing any by-effects. Mueller uses prostigmin in cases of disturbed intestinal function following abdominal operations, in generalized peritonitis, and in intestinal paralysis following parturition or abortion. He states that a distinct intestinal stimulation is noted in about 20 minutes after the drug is administered. Saegesser states that the absence of by-effects makes prostigmin particularly suitable for use as a prophylactic to lessen the danger of postoperative intestinal atony. He reports the use of prostigmin in both surgical and nonsurgical cases and points out that not even in cases of diffuse peritonitis has he ever observed any changes in blood-pressure or pulse rate due to the drug. Schwerk states that prostigmin has always given satisfactory results and he has never observed any ill-effects on the heart or central nervous system. His reported cases include operations of adnexal tumors with adhesions, cystomas, deliveries by Cesarian section, tubal pregnancies, rectovaginal fistulas.

We now wish to report a series of cases in which prostigmin was given both pre- and postoperatively. Our routine preparation in gynecological cases includes a laxative 36 hours before surgery. Fluids—gruels are pushed up to within 3 hours before operation. Saline enema is given. Sedation is procured by means of an opiate and a barbituric acid derivative. The contents of an ampul of prostigmin is given one hour before operation. Postoperative care includes an enema, 1000 cc, immediately upon return from the surgery. Fluids by mouth are given ad libitum, particularly plenty of sugar-loganberry juice. If necessary, glucose, 25 Gm, in physiological saline is given intravenously. Prostigmin is given as required.

The following represent typical cases:

M. L. Male. Fractured pelvis. Troubled with gas in bowels. Prostigmin given in conjunction with oral laxation. Excellent results.

L. K. Female age 8. Fractured skull. Prostigmin used at sign of distention with good results.

E. W. Female. Subphrenic abscess with intestinal distention. Prostigmin medication attended with good results. Patient later died of bacteriemia.

Mrs. R. Female. Fibroid uterus. Complete hysterectomy done. Prostigmin used 30 minutes before operation. Intestine flat easily kept out of operating field. Prostigmin also employed postoperatively when necessary for distention. Made a very good recovery.

Case X. Referred. Female. Intraligamentous fibroids. Hysterectomy done. Did not receive prostigmin preoperatively. Severe distention on third postoperative day. Prostigmin used as required. Attended with good results.

Case Y. Referred. Gangrenous appendix. Appendectomy done. Prostigmin given postoperatively with good results.

J. S. Male age 15. Gangrenous appendix. Appendectomy done. Prostigmin given postoperatively with good results.

OBSTETRICAL CASES

Mrs. M. D. Para one. Developed whooping cough 30 hours before delivery. Troubled with gas. Enemata and oral laxatives used. Later prostigmin given with excellent results.

Mrs. B. W. Para O. Troubled during pregnancy with gas belching. Prostigmin given with good results. Difficult forcep delivery with second degree tear. Troubled with gas after delivery. Excellent results following administration of prostigmin. Patient asked for injections for relief of distention.

Mrs. W. S. Hyperemesis gravidarium. Disturbed by distention before delivery. Prostigmin relieved distention and had no effect upon the uterus. Forcep delivery.

Mrs. E. F. Age 25. Para one. Past history of scarlet fever, diphtheria and influenza. Entered hospital with cold, sore throat, and running nose. Temp 100°. Physical Exam.: Hgt. 64 inches; Wgt. 114 lbs.; Musc. Devl.—good; eyes, ears, nose, heart, lungs, extremities, breasts—negative; thyroid—palp. Pelvic Measur.: Intrasp. 26 cm; Intercr., 29.5 cm; Troch., 32 cm; Ext. Conj., 20+ cm; Cd., 9+ cm. Gas pains. Goood results followed administration of prostigmin, as required.

Mrs. H. M. Aged 29 years. Para two. Past history of general diseases of childhood. Physical Exam.: Musc. Devl.—good; eyes, ears, heart, lungs, extremities, orthopedic deformities, breasts—negative; tonsils—hypertrophied; thyroid—somewhat enlarged. Pelvic Measur.: Intrasp. 26 cm; Intercr., 28.5 cm; Troch., 30.5 cm; Ext. Conj., 19.5 cm; Cd, 9.5 cm. During pregnancy blood pressure 126/80; 126/80; 128/80; 132/86; 134/88; and near term 168/112; 180/120. Urine at first negative then traces of albumin, and 2+ albumin, and near term 2 to 3+ albumin with casts, and 4+ albumin, with casts. Because of high blood pressure and urine findings Cesarian section was done in order to prevent convulsions and to get a living baby. Application of prostigmin attended by satisfactory results.

Mrs. E. A. Age 29. Para one. Past history—negative. Physical Exam.: Hgt. 58½ inches; Wgt. 102 lbs.; Musc. Devl.—good; eyes, teeth, heart, lungs,

extremities, orthopedic deformities, breasts—negative; tonsils—congested; thyroid—not palp. Pelvic Measur.: Intrasp. 25 cm; Intercr., 26 cm; Troch., 29 cm; Ext. Conj., 17 cm; Cd., 7.5 cm. Contracted flat pelvis. Blood pressure 128/70. Cesarian section. Prostigmin given 30 minutes before operation, not troubled with distended gut. Postoperatively, when patient complained of tightness in abdomen, Prostigmin given with relief following in 20 to 30 minutes.

Summary. Prostigmin is a new synthetic substance recommended as a prophylaxis against paralytic ileus, as a treatment for the established condition, and in cases of bladder atony. It is the dimethyl-carbamic ester of 3-hydroxyphenyltrimethyl ammonium methylsulphate. It is available in two concentrations, ampuls delivering 1 cc of a 1:4000 solution for prophylaxis, and ampuls delivering 1 cc of a 1:2000 solution for treatment.

We have applied the drug pre- and postoperatively in a series of cases, of which 13 typical reports are given.

Our results indicate that prostigmin is of value both as a prophylactic against and a treatment for paralytic ileus and distention.

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1530 North Damen Avenue.

THE TREATMENT OF TRACHOMA IN SOUTHERN ILLINOIS

A. F. LENZEN, M. D.

LA SALLE, ILLINOIS

The treatment of trachoma in clinics in general is not ideal nor as satisfactory as in private practice. There are many factors which compel one to modify treatment in southern Illinois to suit individual circumstances. Chief among these factors is the economic status of the patient.

Of a total of 933 cases treated the first year of the clinics only 329 of the patients were self supporting and the remainder were dependent upon some form of charity. The average income of the self supporting patients was $10.05 per week for the entire family that averaged 4.63 individuals.

Trachoma is most prevalent and most neglected in the hill people of southern Illinois. Many of these people are prejudiced against medicine. They have had little contact with the medical profession during the past, and have an ingrained suspicion of strange doctors and nurses. Their confidence has to be won gradually.

Some have the belief that the disease is a curse or a natural affliction present in grandparents and parents and that medical interference with nature is presumptuous.

Many who live in small towns are also affected but the most active and infectious cases are seen in the hill people and among the coal miners and these constitute a continual source of dissemination of this disease.

Even among the more intelligent and those willing to undergo treatment, distances to the clinics are often so great that the entire day is required for one visit to a clinic. Combined with this there are seasons during which the more isolated people are literally mud-bound. Even then many travel over roads which you and I would consider impassable. High water is a factor along the river bottoms.

The treatment of trachoma is a prolonged process requiring from one to four or five years, and constant attention is necessary.

Those people on the border line of relief must

Read before Section on Eye, Ear, Nose and Throat, Eighty-sixth Annual Meeting, Illinois State Medical Society, May 20, 1936.

earn a living working in the coal mines when these are operating, on farms, or at odd jobs. It is often impossible even with the best intentions for them to be treated without interruption. All this tends to lengthen the course of the disease.

Various forms of treatment of trachoma have been used. Among the most common are:

Copper as the stick, in ointment form, or in glycerine. Silver usually as a solution; the stick has been used.

Alum crystal, lead acetate, bichloride of mercury, protargol, and other organic silver compounds.

Massage with boric acid crystals or powder.

Carbondioxid snow, ultra violet light, x-rays, radium, and many others.

As yet there is no specific treatment, but certain forms of treatment give better results than others.

Copper sulphate, the oldest form of treatment and probably the one most widely used, dates from the days of ancient Greece. Experience has proved it efficacious, but it requires a long time. It is painful and there is always the danger of a burn of the cornea if the stick comes in contact with it when the application is made.

This form of treatment, because of danger to the cornea, long duration and the severe reaction some patients get from its use, is not being used in southern Illinois.

Chief experience in trachoma treatment in southern Illinois has been with chaulmoogra oil. Approximately 1,000 cases were so treated.

Treatment at the clinics was given three times a week.

A local anesthetic of 2% butyn was instilled, two drops in each eye, a few minutes apart. Approximately 5 minutes later cotton wound applicators dipped in clear chaulmoogra oil (warming usually removes cloudiness) are rubbed on the conjunctiva of the lids and fornices including the caruncle, until saponification takes place. This is denoted by a foamy appearance of the oil.

After this thorough but gentle massage the eyes are irrigated copiously with normal saline solution.

Combined with clinic treatment, the patient uses, at home, an eye wash of mercury oxycyanide 1-5,000 three times daily applied by means of an eye cup.

In the acute stage or during acute exacerbations the medical treatment is that of any acute conjunctivitis.

Pannus usually recedes with improvement of the conjunctiva, but if it is thick and not succulent it is also massaged. Atropine is used if the pannus is fresh and succulent and gives rise to irritation of the iris and ciliary body.

Infiltrations of the cornea require atropine, heat, dark glasses and mild anesthetics if photophobia is marked. Ulcers are treated in a similar manner.

The rationale of the above form of treatment *is not understood as yet. Whether rubbing alone* is sufficient, since favorable reports from rubbing with saline on cotton, the glass rod, et cetera, are given is not known. Upon the other hand saponification has a favorable effect. The purpose of mercury oxycyanide is to prevent and combat secondary infection.

It was noted that acute symptoms such as blepharospasm, photophobia, hyperemia and secretion decreased under treatment within 2 to 3 weeks, but hypertrophy would remain a variable time.

In mild cases the hypertrophy may disapear within 6 months, while in severe cases it may require from a year to several years.

Vision would improve and the involved cornea begin to clear along with subsidence of acute symptoms. In uncomplicated cases from 6 months to a year or two were required before activity ceased. Resultant scarring was minimum and soft.

Approximately two years ago at the request of Dr. Gradle a form of treatment with quinine bisulphate described by Selinger a short time before at the Chicago Ophthalmological Society was tried with some selected cases in southern Illinois clinics. Cases selected included a number of very severe trachomas that had been under treatment many months with little improvement.

In these cases chaulmoogra oil treatment and oxycyanide home treatment were discontinued and patients were placed upon quinine bisulphate alone excepting those who had corneal involvement, in whom atropine was also used. In addition to these cases some most severe active new cases were placed upon this treatment. Altogether 40 cases were put upon quinine bisulphate.

The rationale of this treatment[1] is that quinine besides being an astringent is a bactericide, is a protoplasmic poison, and because it is an alka-

loid, penetrates deeply into the tissues upon being applied locally to mucous membranes. It destroys pathological accumulations of lymphoid tissues by its action as a protoplasmic poison and this same property inhibits new invasions of the tissues by cellular elements.

The technique of quinine bisulphate treatment is as follows:

The patient is given a local anesthetic as for chaulmoogra oil, after which, cotton wound applicators dipped in 10% aqueous quinine bisulphate solution are applied to the everted conjunctiva. One applicator is used on the upper fornix and upper palpebral conjunctiva, another applicator on the lower fornix and lower palpebral conjunctiva. The application is made with a firm rolling movement until the conjunctival surfaces turn a bluish milky color. The plica semilunaris must be similarily treated. Of course, as in massage with chaulmoogra oil, in aplying the solution to the upper fornix and lid conjunctiva, the patient is directed to look down, while he should be directed to look up when the application is made to the lower fornix. These applications are made three times weekly.

Cold compresses to the eyes immediately afterward relieve the burning sensation which follows.

In addition to the clinic treatment described above a 4% quinine bisulphate ointment is prescribed for use at home twice daily, just before retiring and upon arising. It is well at first, until the patient becomes accustomed to the burning sensation, to use a 2% ointment.

If pannus, corneal infiltration or corneal ulcer is present, atropine, hot compresses, dark glasses and possibly some anesthetic should be used in addition to the quinine solution and ointment which are continued in spite of corneal complications. In fact the latter are benefited by the use of quinine.

Surgical measures are used in conjunction with the above as with any other form of medical treatment of trachoma.

Among the substances with which quinine is incompatible are mercury, lead, zinc, copper and their compounds, iodides, bromides, alkalis, tannic acid, ammonia and lime water.

Among the synergists are arsenic, iron, and mineral acids.

Under this treatment, within a week to two weeks acute symptoms subsided. Vision improved markedly. Hypertrophy remained in some cases a year, while in others it disappeared within 6 months. A few cases discontinued treatment and several did not improve. Upon the whole the results were gratifying.

Regardless of the type of medical treatment employed, expression and grattage of follicles is indicated because it hastens recovery. Frequently elimination of a nest of follicles in the uper fornix and expression of the region of the plica will mark the beginning of recovery of a case of long standing.

Grattage with the edge of the knife, expression of the plica, and that part of the fornix not accessable to the knife, followed by firm but gentle wiping with dry gauze, gives good results.

Sequelae resulting from scar tissue formation as trichiasis, demand surgical intervention in order to derive benefit from any form of medical treatment. And this treatment is to be carried on until all evidence of activity has disappeared. Even after this it is advisable to continue treatment at less frequent intervals for from 6 months to a year, followed by observation.

Many patients in the trachoma clinics are old cases with activity from 10-20 years or longer and for that reason sequelae are common. Entropion and trichiasis constitute the majority of the sequelae. And among surgical measures usually employed are the Hotz.

In this procedure,[6] under local anesthetia, after a hard rubber plate has been placed beneath the lid an incision is made along the entire length of the lid 3 m.m. above and parallel with the border. Lying exposed in the wound are the reddish fibers of the orbicularis muscle parallel with the edge of the lid.

After the skin has been freed downward for a short distance and upward to the upper border of the tarsus, the fibers of the muscle are lifted up at the one end with forceps and excised in a breadth of approximately 4 m.m. to the other end of the lid with the scissors applied flat. This frees the entire surface of the tarsus which should be dissected free of all tissue.

In most cases of trachoma the tarsus is several m.m. thick, is firm in texture and curved convexly forward.

A sharp scalpel is entered somewhat below the upper margin of the tarsus and parallel with its plane and with a sawing movement downward thin slices are cut away. The upper portion of the tarsus is not thinned unless it prevents good

eversion of the lid margin. Meller advices a furrow in the anterior surface of the tarsus made sufficiently thin so that after the sutures are applied the lid margin is easily turned out, leaving the lower margin of the tarsus untouched. It is frequently necessary, however, to remove the lower one-third to one-half of scarred tarsus entirely down the conjunctiva in order to evert the lash line.

A double armed suture is passed through the upper border of the tarsus in a horizontal direction and the skin margins directly above and below are then included in this suture. Four such sutures are taken, evenly spaced. Good approximation upon tying sutures helps eversion. A simple vaseline dressing is applied.

The modified Ewing operation is a reconstruction of the lid for the correction of trichiasis and entropion. The incision is made in the regon of Arlt's streak on the conjunctival side 3 m.m. from and parallel with the border of the lid, and continues through the entire tarsus.

The lower portion of the divided tarsal plate is everted 90 degrees and held in place by sutures thus placing the two parts in a "T" formation. Because of the many steps in this procedure it will not be described in further detail.

The method of Spencer Watson for correcting trichiasis limited to the region of the external canthus gives good results and is not mutilating as in excision.

In this procedure an intermarginal incision is made the length of the affected area and a cut made in the skin of the lid, 2 m.m. distant from and parallel with the margin. By turning downward the lid margin, the cutaneous incision is made to terminate at the canthus and join the intermarginal incision. In this way the cilia are contained in a flap, the base of which lies away from the canthus. A second skin incision 2 m.m. above and parallel with the first, is made, forming another flap, the base of which lies on the side of the canthus and, of course, above it. The flaps are undermined and exchanged, the flap bearing the lashes moved above, while the upper flap is placed at the margin of the lid. The flaps are held in the new positions by sutures passing through their angles, and within a few days permanent union takes place.

Fine hairs of the flap cause very little or no irritation as the cornea seldom reaches this area.

In cases of trichiasis and entropion in which the tarsal plate is too small to be used for anchorage of sutures, as is done in the previously described operation, mucous membrane grafts are used.

Cases of spastic entropion are corrected by means of the Gaillard suture.

Persistent lacrymation and blepharospasm which would not improve upon any medical treatment or during a rest from all medication, frequently responded to a canthoplasty.

Other minor surgical procedures resorted to will not be described in this paper.

To recapitulate: The treatment of trachoma is a long drawn out one. It requires complete cooperation of the patient and this may be a matter of educational campaign, improvement in economic status, the building of good secondard roads, and other obvious factors.

Treatment definitely does help. In our hands many persons were able to resume their duties in the fields, mines and homes, after several months' treatment.

Chaulmoogra oil is well suited for treating a large number of cases. It is simple to apply, it is safe and it gives uniformly good results with little scarring.

Quinine bisulphate is efficacious and has the advantages of beneficial effect upon the involved cornea.

Judicious surgery in certain active cases shortens the period of treatment, and in old cases with sequelae ends years of discomfort and pain with full restoration of all remaining function of the eye.

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DISCUSSION

Dr. D. C. Orcutt, Chicago: As I attend medical conventions here and there, it is with a great feeling of satisfaction that I see our boys appearing prominently on the program. By our boys, I refer to former interns, house surgeons and assistants of the Illinois Charitable Eye and Ear Infirmary.

I congratulate Dr. Lenzen on his careful and exhaustive report on trachoma conditions existing in

Illinois, and the marked improvement there has been in the care of these poor people, so handicapped by disease and environment. He and other speakers have so thoroughly covered the subject, as we now see and care for the disease, that I am sure it will be permissible for me, instead of attempting to criticise or offer suggestions on present day conditions and treatment, as so ably presented, to digress into the past, and I will ask you to go back with me to my premedical days and from there go along with me for a few years early in this century.

Before doing this, however, I want to mention briefly the disease conditions from which it is necessary to differentiate trachoma: follicular conjunctivitis, vernal catarrh, tuberculous and syphilitic, Paranaud's disease. I will mention only briefly follicular conjunctivitis, with its pronounced nodules but absence of corneal involvement and vernal catarrh, with its seasonal exacerbation and absence of corneal involvement.

My birthplace was Coles County, this being the last county of the great corn belt, and the adjoining counties south were known as Egypt, where hard pan was said to come up to the second rail in the fence. This was long before oil was struck along the National Road, and the people lived in conditions of "poverty extremis" —corn pone, molassas and sowbelly being their chief means of sustenance. The principal source of revenue was to go up north—to Coles, Douglas and Champaign counties—to work. All of our help, both outdors and indors, came from down there. When broom-corn cutting time came there was a complete exodus from the counties south to the Mecca up north. They came literally by thousands, and my boyhood recollections were that a very large percentage came with sore eyes. If the condition bore a scientific name, which I doubt, it was invariably termed granulated eyelids. No treatment whatsoever was thought of or given. Washing promiscuously, as they did, and using the same inadequate towels, we can readily understand the chance of inoculation. My father contracted the disease, and during many years of his life had greatly lowered vision from its ravages.

Is it any wonder that after studying medicine and, almost immediately after graduation, receiving an appointment at the Infirmary, there was one disease that seemed more familiar than any other? I unconsciously drifted into the care of these poor patients who were sent in by the supervisors of the counties in the southern part of the state. For years they addressed me by my first name, having known me as a boy, working for my family in harvest time, and in later years meeting me yearly when I went into their country to buy mules.

At that time we were not doing much surgery at the Infirmary, and what we did was mostly the Hotz lid operation as originated by that sainted gentleman late in the last century. His name will live for his first efforts to relieve this terrible disease. Gradually we began the more major work, and the dissection of the cicatricial cartilage became common. In an old case when the tarsal cartilage was drawn and contracted, all mucous membrane destroyed, the pannus extending over the cornea, the operation was a Godsend and the relief almost unbelievable. This was coupled in most cases with a broad canthoplasty. The pressure was removed from the globe, the pannus contracted, and pupillary iridectomies gave fairly useful vision. Peritomy was tried cautiously, but whether it ever proved a success I am unable to state. After the symptoms had subsided, cataracts were removed, and usually successfully. I do not recall a single instance of loss by infection, possibly because such eyes are impervious to the usual infective processes.

Under this regime at the Infirmary, the predominating class of cases dwindled into an almost negligible class, and now, thanks to the advancements in science, the fact that men are going into that country to meet the condition at its source and the gradual education of the class of individuals who have been its victims, this dreadful disease is gradually losing its serious aspect and we may hope to see it wiped out entirely.

HYPOGLYCEMIC STATE IN TREATMENT OF SCHIZOPHRENIA

Bernard Glueck, Ossining, N. Y. (Journal A. M. A., Sept. 26, 1936), states that the evidence is far from conclusive that the effects of the hypoglycemic state and of the insulin shock in patients with schizophrenia is something specific to this form of disorder. The average patient's reaction to this sudden deprivation of the organisms of its sugar content has much in it of the nature of a profound organismal and personality disintegration. No other form of psychiatric therapy requires as much care, skill and caution in its application as does this. Four deaths have been recorded in connection with the treatment, three in Vienna and one in Switzerland, but it is impossible to state with accuracy what percentage this constitutes of the total treated. While undergoing the treatment, the patients appear to be in fine physical condition, usually gain weight, and, aside from a slight sense of fatigue, do not complain of physical discomfort during the time when they are not in the hypoglycemic state. The object is to achieve a progressive insulinization of the patient through the intramuscular administration of daily increasing doses of insulin until the so-called shock dose is attained.

CHOICE OF ANALGESICS

R. W. Waggoner, Ann Arbor, Mich. (Journal A. M. A., Sept. 26, 1936), states that aminopyrine has been most severely indicted for its supposed cause of agranulocytosis. There are still many who are afraid to prescribe this splendid analgesic because of the possibility of harm resulting from its use. The property of producing agranulocytosis may be due to the benzene ring, but many cases of industrial benzene poisoning have been noted without agranulocytosis. It is logical to believe that there may be an idiosyncrasy to the drug, just as there is to many other valuable drugs. It should not be discarded because of the unfortunate reaction in a few cases. Similar criticism of the use of cinchophen and neocinchophen has been raised because this drug is presumed to cause liver damage. Studies on experi-

mental animals have not proved that these drugs have a constant specific liver toxic effect even when given in doses far in excess of the therapeutic dose. An analysis of the literature would indicate that these drugs may be prescribed safely when a proper indication for their use exists. Many of the barbituric acid derivatives have been used for the relief of pain. The high comparative dosage of these drugs necessary for analgesic action makes their routine use for such purposes inadvisable. Sensitization to acetylsalicylic acid is said to be frequent among allergic persons. Placing a small bit of the drug on the tongue and allowing it to dissolve will produce itching, cough or asthma in a short time in sensitized persons. The physician should recognize first of all the temperament and personality of his patient and, secondly, the situation, type and severity of the pain, and he should prescribe his analgesic medication accordingly. The narcotic should be used rarely and only in emergency situations, not in those cases in which analgesic medication may be necessary over a long period.

CYANOSIS IN THE NEW BORN

The most common causes of cyanosis (E. A. Morgan and Alan Brown, *J. A. M. A.*) in the new born are: (a) aspiration of mucus and (b) atelectasis. Morgan and Brown consider these two factors conjointly because in a vast majority of cases atelectasis is the result of the plugging of the sections of the bronchial tree with the aspirated mucus. This complication can be prevented by the careful removal of the pharyngeal secretions before the child's first inspiratory effort. For this purpose do not use coarse gauze because it traumatizes the delicate buccal mucosa of the child. (When gauze is used we can reach only as far as the faucial region.) A properly curved metal suction tip should be used. Suction should be continuous and the force should be only moderate in order to avoid injury to the uvula and other soft structures.

Other causes are: prolapse of the cord or cord around the neck; prolonged difficult labor; breech presentation with difficult delivery of the after coming head; cerebral edema and traumatic intracranial hemorrhage.

When a child becomes cyanotic during the first few weeks of life tetany should be suspected. The other symptoms associated with tetany are: convulsions, twitchings and low blood calcium. These cases respond to calcium therapy.

FOUR O'CLOCK FATIGUE

It is generally conceded that the morning is the time most conducive to good work whether it be physical or mental. At noon we pause—and should relax—while we stow away a little provender to replace the fuel that has been utilized in the forenoon's activity.

After getting under way again, it is the customary experience to find a tendency to earlier slowing down of work than before. Along about 4 o'clock there is a perceptible lagging of effort. In the hot Spanish-speaking countries of the western hemisphere, a *siesta* is observed which affords recuperation through an afternoon nap.

The four o'clock coffee habit of the Scandinavians and the Englishmen's afternoon tea are also excellent means of coping with this afternoon fatigue. In this country there is a tendency to popularize the cocktail hour, which, however, is far less satisfactory. Something should be done, however, to promote a properly observed 4 o'clock pause.—*The Journal-Lancet.*

AUTOTRANSFUSION IN TREATMENT OF WOUNDS OF HEART

Charls M. Watson and James R. Watson, Pittsburgh (*Journal A. M .A.*, Feb. 15, 1936), used autotransfusion to combat the excessive loss of blood resulting from a stab wound of the heart. As far as they can determine by a review of the literature, this is the first time autotransfusion has been used in the treatment of this type of injury. In view of its marked success in this instance, they believe that it should receive further trial as an adjunct to cardiorrhaphy in those cases in which the loss of blood is sufficient to threaten the immediate survival of the patient. The patient returned for an examination four months after discharge from the hospital, stating that he felt fine and was working again. The chest was essentially unchanged except for some improvement in the deformity, and a roentgenogram showed thickened pleura but normal heart and lung shadows. An electrocardiogram was negative.

SODIUM CITRATE: SPIROCHETICIDE

Dr. R. S. Leadingham, Atlanta, Ga., Journal of Lab. and Clinical Medicine, St. Louis, June, 1936, says:

While preparing for darkfield examination a rather thick cover glass specimen from a laryngeal lesion of Vincent's angina, containing many pus cells and a bacterial flora consisting mainly of myriads of Vincent's organisms, Leadingham observed that the addition of a drop of a 2 per cent solution of sodium citrate caused immediate cessation of movement of the spirochetes and apparently eventful dissolution. Repeated examinations gave the same results. Later the same solution was applied to the surface of the ulcer from which the specimen had been taken. Ten minutes later no Vincent's organisms were found. None were present the next day or the day following, when the patient was dismissed.

WASHINGTON SUPREME COURT RULES THAT CHIROPRACTORS CANNOT CLAIM BASIC SCIENCE ACT EXEMPTION

The action at issue, which recently came before the Supreme Court of the State of Washington, was on an appeal from the King County Superior Court, wherein a chiropractor, not licensed as such in Washington (and not eligible to chiropractic licensure, unless previously qualified through a basic science certificate), claimed, among other contentions, that to require him

" . . . to pass an examination in subjects (those of basic science; anatomy, physiology, chemistry, pathology, and hygiene), which have no relation whatever

to the functions of chiropractic healing, would be a denial of liberty and of due process of law and, therefore, unconstitutional and void."

The opinion of the Supreme Court state:

" . . . it cannot be doubted that no one has a natural or absolute right to practice medicine or surgery, and that the state may, under its police power, regulate within reasonable bounds, for the protection of the public health, the practice of medicine and surgery by defining the qualifications one must possess before being licensed to practice the same; and that a chiropractor is deprived of no constitutional right by being required, before receiving a certificate to practice his profession, to have adequate knowledge of the subjects laid down by the statutes of this state."

A man entered the waiting room of a hospital. His head was enveloped in bandages.

"Are you married?" asked the doctor.

"No," replied the man. "I've been run over."

Society Proceedings

COOK COUNTY

CHICAGO MEDICAL SOCIETY

Regular Meeting, Wednesday, November 18, 1936

PROGRAM

"The Operating Room Diagnosis of the Gall Bladder."
Ralph C. Sullivan, M.D., F.A.C.S.
Clinical Professor of Surgery,
Loyola University School of Medicine.

"Liver Deaths" and the Complications of Gall Bladder Surgery.
Charles Gordon Heyd, B.A., M.D., F.A.C.S.
Professor of Surgery, New York,
Post Graduate Medical School.
President, American Medical Association.

Regular Meeting, Wednesday, December 2, 1936

PROGRAM

Allergy in Childhood.
I. Harrison Tumpeer.

The General Treatment of Allergy.
Harry Huber.

The Importance of the Recognition of the Minor Allergies.
Milton B. Cohen, Cleveland, Ohio.

Discussion opened by
Frank L. Foran.

DISTRICT MEDICAL SOCIETY OF CENTRAL ILLINOIS

Joint meeting with Decatur Medical Society and Staff of Decatur and Macon County Hospital, Decatur, Ill., November 17

MORNING SESSION

Decatur and Macon County Hospital
Operating Clinics

Dr. E. C. Roos, Pelvic Laparotomy-Spinal
Drs. E. P. McLean and D. D. Smith, Caesarian Section-Local
Dr. Ray Tearnan, Pelvic Laparotomy
Dr. E. C. Roos, Gall Bladder-Spinal
Dr. C. Rich, Common Duct Stone
Dr. Louis J. Hirschman, Detroit Rectal Operative Clinic
(Mr. D. G. McCurdy of Chicago will demonstrate Cyclo-Propane Anaesthesia)
Out Patient Clinic
Dr. W. Stuart Wood, Orthopedics.
Complimentary luncheon by the Decatur and Macon County Hospital in the Nurse's Home.

AFTERNOON SESSION

Auditorium of the Macon County Tuberculosis Sanitorium

Business meeting of the Central Illinois District Medical Society.
Diagnostic Clinic—Dr. Louis J. Hirschman, Detroit.
Clinical Pathological Conference
(1) Carcinoma of the gall bladder—Drs. Woodward, Rich, Stanley and Melnick.
(2) Carcinoma of lung—Drs. Mertz, Jack, Lindberg and Melnick.
Discourse—Dr. Karl A. Meyer, Chicago.

EVENING SESSION

Orlando Hotel

An informal reception for the guests will be held by the Decatur Medical Society.
Dinner.
Scientific Addresses:
"The Erroneous diagnosis of 'colitis,'" Dr. Louis J. Hirschman, Professor of Proctology, Wayne University College of Medicine, Detroit, Michigan.
"Surgery of the Colon," Dr. Karl A. Meyer, Medical Director Cook County Hospital, and Associate Professor of Surgery, Northwestern University Medical School, Chicago, Illinois.

SOUTHERN ILLINOIS MEDICAL ASSOCIATION

Meeting, November 12, *Murphysboro, Ill.*

PROGRAM

Address of Welcome—R. B. Essick, M. D., Murphysboro.
Report of Two Caesarian Sections—F. B. Hiller, M. D., Pinckneyville.
Brief Mention of Several Unusual Cases—Dr. Flint Bondurant, Cairo.
Low Cervical Caesarian Section with lantern slide demonstration—Dr. W. C. Scrivener, E. St. Louis.
Fracture of Middle Third of Clavicle—Dr. H. I. Stevens, Tamaroa.
Demonstration of a Splint for Fractures of Humerus—Dr. T. VanBoyd, E. St. Louis.
A Report of Two Unusual Cases—Drs. C. O. Lane and C. O. Holoffe, West Frankfort.
Some Points in Gynecological Diagnosis Helpful to the Practitioner—Dr. Otto S. Krebbs, St. Louis, Mo.
The Management of Toxemias of Pregnancy—Dr. Frederick H. Falls, Chicago, Ill.
Ringworm of Hand and Feet, Diagnosis and Treatment—Dr. Clinton W. Lane, St. Louis, Mo.

AFTERNOON SESSION

Heart Disease—Its Diagnosis—Robert Berghoff, Chicago, Ill.

Heart Disease—Its Treatment—Dr. O. P. J. Falk, St. Louis, Mo.

The Urologic Complications of Pregnancy—Dr. Justin Cordonnier, E. St. Louis.

The Medical Problem of Dental Caries in Children—Dr. Hugh McCulloch, St. Louis, Mo.

Management of Diseases of the Liver—Dr. Charles A. Elliott, Chicago, Ill.

Fractures with Special Reference to Colles and Pott's Fractures and Fractures of the Hip—lantern slides—Dr. Philip H. Kreuscher, Chicago, Ill.

Business Session and Election of Officers.

Banquet—Speakers:

President's Address—Dr. J. S. Templeton, Pinckneyville.

"Something for Nothing"—Dr. Rolland L. Green, President Illinois State Medical Association.

"Your Medical Society"—Dr. Harold M. Camp, Secretary Illinois State Medical Association.

"Medical Legislation"—Dr. John Neal, Springfield.

Marriages

ARTHUR L. ENNIS, Maroa, Ill., to Miss Bonnie Regan of Decatur, August 21.

Personals

Sangamon County Medical Society at a meeting, November 5, endorsed Dr. Samuel E. Munson as a candidate for the presidency of Illinois State Medical Society.

Dr. Willard Van Hazel, Chicago, addressed the Winnebago County Medical Society in Rockford, October 13, on "Surgery of the Lungs and Pleura."

Dr. Eric Oldberg, Chicago, addressed the Sangamon County Medical Society, Springfield, November 5, on "The Cerebrospinal Fluid."

Dr. Leroy H. Sloan, Chicago, discussed "Differential Diagnosis of Common Causes of Coma" before the Bureau County Medical Society, October 13.

At a meeting of the Chicago Council of Medical Women, November 6, Dr. Marie Ortmayer discussed "Clinical Values of Gastroscopy."

Among others, Dr. Theodora Wheeler discussed "Carbohydrate Metabolism and the Convulsive Theshold" before the Chicago Neurological Society, November 19.

Dr. George W. Crile, Cleveland, addressed the North Side Branch of the society, November 5, on "Comparative Anatomy of the Energy Controlling System."

Drs. Ralph A. Reis, Chicago, and Ralph P. Peairs, Normal, discussed gynecology and medical economics, respectively, before the Livingston County Medical Society, November 12.

At a meeting of the Will-Grundy County Medical Society, November 11, Dr. Tell Nelson spoke on the "Management of Bronchial Asthma."

Dr. Joseph Brennemann, Chicago, addressed the Bureau County Medical Society at Princeton, November 10, on "Pneumonia in Childhood."

Dr. John de J. Pemberton, Rochester, Minn., addressed the Peoria City Medical Society, November 10, on surgery of the thyroid gland.

At a meeting of the Kankakee County Medical Society, November 12, Dr. Margarete M. H. Kunde, Chicago, spoke on "Endocrine Therapy in Menstrual Disturbances."

At a meeting of the McDonagh Society for Clinical Research, November 20, Dr. Florimond J. Leblanc spoke on "Pneumonia, Pulmonary Thormbosis and Pulmonary Edema."

Drs. John P. O'Neil and Joseph A. Jerger, both of Chicago, discussed artificial fever therapy before the Kane County Medical Society in Elgin, October 14.

The Carroll County Medical Society was addressed in Savannah, October 13, by Drs. John W. Powers, Milwaukee, and Harry M. Hedge, Chicago, on diseases of the skin and compound fractures respectively.

The Chicago Society of Industrial Medicine and Surgery was addressed, November 23, by Drs. James J. Callahan on "Fractures Around the Elbow Joint" and Edwin M. Miller, "Fractures Around the Elbow Joint in Children."

Dr. Ernest W. Goodpasture, professor of pathology, Vanderbilt University School of Medicine, Nashville, Tenn., will deliver the thirteenth Ludvig Hektoen Lecture of the Frank Billings Foundation, January 22. His subject will be "Vaccinia."

Among others, Drs. Harry P. Ritchie, St. Paul, and Otto W. Yoerg, Minneapolis, discussed "Another Suggestion in the Technic of Cholecystectomy for the Selected Case" and

"Fracture of Os Calcis" respectively before the Chicago Surgical Society, November 6.

The Chicago Pathological Society was addressed, November 9, by Dr. Paul R. Cannon and George Hartley, Jr., on "The Inadequacy of Allergic Inflammation as Protection Against Infection with Virulent Pneumococci."

The Chicago Pediatric Society was addressed November 17 by Drs. Katsuji Kato, Chicago, and Robert Blessing, Evanston, Ill., on "Sternal Marrow Puncture in Infants and Children" and "The Incidence of Breast Feeding in Private Practice in a Suburban Metropolitan Area"; these were inaugural theses.

Prof. Bernhard Dattner of the University of Vienna addressed the German Medical Society of Chicago, November 3; his subject was "Modern Therapy of Neurosyphilis." Dr. Dattner gave a lecture at Michael Reese Hospital, November 2, on "Nervous Manifestations of Alimentary Hypersensitivity."

The Chicago Orthopaedic Society was addressed, November 13, by Drs. W. Eugene Wolcott, Des Moines, Iowa, on "The Circulation of the Hip with Practical Suggestions Regarding Prognosis in Certain Types of Fractures of the Neck of the Femur" and Frank G. Murphy, "Osteochondritis Dissecans."

At a meeting of the Chicago Gynecological Society, November 20, papers were presented by Drs. William C. Danforth, Evanston, Ill., on "Carcinoma of the Cervix During Pregnancy"; William B. Serbin, "Splenomegaly in Pregnancy," and Julius E. Lackner and Leon Krohn, "Effect of Ovarian Hormones on the Human (Nonpuerperal) Uterus."

On October 21, 1936, Dr. George James Musgrave of Chicago addressed the Christian County Medical Society on "Nasal Sinus Diseases."

News Notes

—Antirabies serum will hereafter be distributed without charge to all persons in need of it, the Chicago *Tribune* reported November 14. Certificates of poverty will no longer be required, it was stated, because the state department of health has placed the serum on the state's free list.

—A public symposium on mental hygiene and the environment was held at the Hotel Bismarck, November 18, by the Illinois Society for Mental Hygiene, with the following speakers:

W. Lloyd Warner, A. B., assistant professor of anthropology and sociology, University of Chicago, Social Anthropology.

Clifford R. Shaw, M. A., director, department of sociology, Institute for Juvenile Research, Sociology.

Dr. Franz Alexander, director, Institute for Psychoanalysis, Psychoanalysis.

Dr. H. Douglas Singer, director, University of Illinois Psychiatric Institute, Social Psychiatry.

—In the lobby window in the Annex Building of Marshall Field and Company is an exhibit on "feet" designed to show that foot disorders are frequently traced to systemic diseases and emphasizing that the family physician should be consulted before any corrective measures are introduced. Models are displayed to show that a shoe should be made to fit the foot rather than the foot to fit the shoe. There is also a model in plaster of the perfect foot of a child. This window has been given to the Chicago Medical Society, free of rental and service charges, for the display of health educational material. The material is prepared by the educational committee of the Illinois State Medical Society.

—The Rosenwald Fund has given $100,000 to the American Hospital Association to study and develop voluntary hospital insurance. The program of the association will be projected through a special committee on hospital service with C. Rufus Rorem, Ph. D., as executive director. Other members of the committee are Drs. Basil C. MacLean, Rochester, N. Y., chairman; Sigismund S. Goldwater, New York; Robin C. Buerki, Madison, Wis.; Claude W. Munger, president of the American Hospital Association, and Msgr. Maurice F. Griffin, Cleveland. According to an announcement, one phase of the work will deal with advice and consultation on existing plans and those being formed concerning actuarial data, benefits, method of organization, public relations and annual subscription rates, while a second phase will cover relations of hospital service plans to the medical profession, public welfare activities, state departments of insurance, private insurance companies, hospital administration and hospital accounting.

—At a meeting of the Institute of Medicine of Chicago and the Society of Medical History of Chicago, November 24, the following program was presented:

Dr. Ludvig Hektoen, Notes on the History of Bacteriology in Chicago Prior to the Organization of Bacteriologic Teaching (about 1890).

Dr. George H. Weaver, The Introduction of Bacteriology Into the Medical Curriculum in Chicago.

Dr. Fred O. Tonney, The Introduction of Bacteriology into the Public Health Service in Chicago.

A paper prepared for the Society of Medical History by Dr. Jacques Holinger, before his death in 1934, was read by title: "An Incident in the Development of Antisepsis and Dr. Henry Banga's Part Therein." Dr. Peter Bassoe will deliver the presidential address before the twenty-first annual dinner and meeting of the Institute of Medicine, December 1, on "A Sketch of the Development of Psychiatry and Neurology in Chicago."

—A collection of papers and personal effects of Dr. William Beaumont has been given to the University of Chicago by the physiologist's grandson, Ethan Allen Beaumont, and his wife, of De Pere, Wis. The collection, consisting of first editions, unpublished letters, a case history, surgical instruments, photographs and a chair presented to the Beaumonts by Robert E. Lee, who once lived with them in St. Louis, was on exhibition at the university library, November 20, together with an oil portrait of Dr. Beaumont lent by Mr. A. C. Denny of Evanston. During the exhibition, addresses were delivered by Robert Maynard Hutchins, president of the university, and Drs. Anton J. Carlson, Arno B. Luckhardt and Selim W. McArthur. The program, sponsored by the Friends of the Library of the University of Chicago, was planned to coincide with the one hundred and fifty-first birthday of Dr. Beaumont, November 21.

—The Conference of Illinois Health Officers and Public Health Nurses will be held at the Auditorium, Springfield, December 8-9. The program will include the following speakers:

Dr. Edward G. Huber, instructor in preventive medicine and hygiene, Harvard School of Public Health, Boston, Administrative Functions of a Health Officer.

Philip Jay, D. D. S., University of Michigan School of Dentistry, Ann Arbor, Dental Caries, A Public Health Problem.

Dr. Kenneth F. Maxcy, director, School of Public Health, University of Minnesota, Minneapolis, Administrative Problems in Contagious Disease Control.

Elmer V. McCollum, Ph. D., professor of biochemistry, Johns Hopkins University School of Hygiene and Public Health, Baltimore, Diet in Resistance to Disease.

Dr. Raymond A. Vonderlehr, assistant surgeon general, U. S. Public Health Service, Washington, The Problem of Syphilis Control.

Dr. Reginald M. Atwater, executive secretary, American Public Health Association, New York, What Next?

At a luncheon for health officers Wednesday, special public health problems in Illinois will be discussed by Dr. Lloyd L. Arnold, professor of bacteriology and public health, University of Illinois College of Medicine, Chicago; Dr. Winston H. Tucker, Springfield, coordinating epidemiologist, state department of public health; Dr. Milton H. Kronenberg, Chicago, medical director, division of industrial hygiene, state department of public health, and W. H. Haskell, milk sanitarian, U. S. Public Health Service.

—A new low cost hospitalization program, known as the "plan for hospital care," has been adopted by the Chicago Hospital Council. Contracts have been sent to Chicago's hospitals. Individuals may become subscribers to the plan, but all subscribers must make application in groups of ten. Each contract is executed individually and not by group, but subscribers may make payments through their companies by payroll deductions or having a company remitting agent. In small firms, where such procedure is not practical, payments will be made either in full at the beginning of the contract or in quarterly remittances. The annual fee is $9.60. In addition, each subscriber may designate a dependent for whom he may purchase half coverage. After designating the first dependent for an annual fee of $4.20, the subscriber may for another $2.20 cover in a group all the other members of his family who qualify as dependents. All contracts become effective ten days after the date of the certificate, except that in case of

accident or emergency illness hospital care will be provided immediately. The contract does not cover pulmonary tuberculosis after diagnosis, or any care provided under the workmen's compensation laws of any state or the United States. If a subscriber requires emergency or accident treatment outside Chicago, his bill is paid to the extent of $6 a day so long as he selects a hospital which maintains a standard of care and scale of rates satisfactory to the corporation and the Illinois State Department of Public Welfare. Major benefits under this plan include twenty-one days of hospital care covering board and room in semi-private accommodations; general nursing service; operating room and auxiliary services; delivery room and obstetric service for a subscriber in good standing more than twelve months; anesthesia when the services are rendered by salaried employes of the hospital; ordinary drugs, medications and dressings; pathologic and laboratory services, and x-ray examinations when considered necessary by the atending physician. Incorporators of the Hospital Service Corporation, which will carry out the project, include Mr. Charles H. Schweppe, president, St. Luke's Hospital; Dr. Arthur C. Bachmeyer, director of the University of Chicago Clinics; Rev. John W. Barrett, director of Catholic hospitals in Chicago; Dr. Irving S. Cutter, dean, Northwestern University School of Medicine; J. Dewey Lutes, superintendent, Ravenswood Hospital, and Taylor Strawn, president of Grant Hospital.

—At the annual meeting of the Board of Directors of the Mississippi Valley Medical Society held in Quincy November 8, the following officers were elected for 1937:

President-elect, Charles S. Skaggs, M. D., East St. Louis, Ill.

1st Vice-President, Frank G. Ober, M. D., Burlington, Iowa.

2nd Vice-President, M. Pinson Neal, M. D., Columbia, Missouri.

3rd Vice-President, E. C. Kelly, M. D., Peoria, Illinois.

Secretary-Treasurer, Harold Swanberg, M. D., Quincy, Ill. (re-elected).

Honorary membership was conferred on the following:

Frederick H. Falls, M. D., Chicago; Richard H. Jaffe, M. D., Chicago; Raymond Wm. McNealy, M. D., Chicago; Donald C. Balfour, M. D., Rochester; Melvin S. Henderson, M. D., Rochester; Ralph Kinsella, M. D., St. Louis; Arthur Joseph Barsky, M. D., New York; George Crile, M. D., Cleveland; Bela Schick, M. D., New York; Alphonse M. Schwitalla, Ph. D., St. Louis.

The 1937 meeting will be held at Quincy, Illinois, September 29, 30, and October 1 (Wednesday, Thursday and Friday).

Deaths

CARL PHILIP BAUER, Chicago; Rush Medical College, Chicago, 1922; a Fellow, A. M. A.; assistant clinical professor of obstetrics and gynecology at his alma mater; member of the Central Association of Obstetricians and Gynecologists; fellow of the American College of Surgeons; assistant attending obstetrician and gynecologist to the Presbyterian Hospital; aged 40; died, September 19, of coronary thrombosis.

LEE C. CARDER, Hull, Ill.; College of Physicians and Surgeons, Keokuk, Iowa, 1891; aged 83; died, September 5.

DANIEL J. CAREY, Chicago; College of Physicians and Surgeons of Chicago, 1895; aged 61; died, September 24, of cholelithiasis, pneumonia and heart disease.

CLARENCE LIGHT CARLTON, Moline, Ill.; Northwestern University Medical School, Chicago, 1903; a Fellow, A. M. A.; served during the World War; on the staffs of the Lutheran Hospital and the Moline Public Hospital; aged 65; died, September 9, of carcinoma of the colon.

EFFA V. DAVIS, Chicago; Woman's Medical College, Chicago, 1891; a Fellow, A. M. A.; formerly assistant clinical professor of obstetrics at her alma mater and Rush Medical College; owner of the Chicago Maternity Hospital; on the staffs of the Women and Children's Hospital and the American Hospital; past president of the Chicago Council of Medical Women; aged 73; died, October 28.

EDWARD JOSEPH FARRELL, Berwyn, Ill.; Northwestern University Medical School, Chicago, 1907; health officer of Berwyn; aged 53; died, August 9, in the Berwyn Hospital.

ALBERT WILLIAM FELTMAN, Chicago; Jenner Medical College, Chicago, 1896; aged 72; died, September 3, of myocarditis and chronic nephritis.

CHARLES LEONARD FERRIS, Carthage, Ill.; Rush Medical College, Chicago, 1878; aged 82; died, August 9, of chronic myocarditis.

ROBERT LINCOLN FINLEY, Du Quoin, Ill.; Hering Medical College, Chicago, 1912; aged 49; died August 18, at Thebes, of arteriosclerosis.

GILBERT FITZ-PATRICK, Chicago, a Fellow A. M. A.; chairman of the professional committee for medicine,

Illinois Department of Registration and Education, died suddenly November 12, aged 63, of coronary thrombosis and chronic myocarditis. Dr. Fitz-Patrick was born in Salem, Ohio, Jan. 19, 1873. He attended the Ohio Northern University in Ada and received his M. D. degrees from the Chicago Homeopathic Medical College in 1896 and the Harvey Medical College, Chicago, in 1899. He was formerly head of the department of obstetrics at the Hahnemann Medical College and Hospital, Chicago. During the World War he was chief of surgery in a base hospital at Camp Gordon, Atlanta, Ga., colonel in the medical reserve corps of the U. S. Army. In 1927 he was a delegate of the Association of Military Surgeons to the Royal Institute of Public Health in Belgium and the following year was a delegate to the first International Congress of Public Health and Hygiene at Cairo, Egypt. He was past president of the Illinois section of the American Society for the Control of Cancer and of the North Side branch of the Chicago Medical Society, and a fellow and governor of the American College of Surgeons. Dr. Fitz-Patrick was attending obstetrician to the Cook County Hospital and the Henrotin Hospital, consulting obstetrician and trustee of the Illinois Masonic Hospital, and member of the visiting staff of the Passavant Hospital.

Edward Newton Flint, Chicago; College of Physicians and Surgeons of Chicago, 1887; aged 72; died, August 31, at the Ravenswood Hospital, of myocarditis.

William Karg Gray, Chicago; College of Physicians and Surgeons of Chicago, School of Medicine of the University of Illinois, 1905; a Fellow, A. M. A.; formerly assistant professor of otolaryngology at the Loyola University School of Medicine; for many years on the staff of St. Anne's Hospital; aged 58; died, September 11, at his home in Oak Park, Ill.

William Francis Hager, Pana, Ill.; Barnes Medical College, St. Louis, 1908 and 1909; a Fellow, A. M. A.; on the staff of the Huber Memorial Hospital; aged 55; died, August 10, of coronary thrombosis.

James Arthur Sullivan Howell, Elgin, Ill.; College of Physicians and Surgeons of Chicago, School of Medicine of the University of Illinois, 1891; served during the World War; aged 65; died, August 18, in St. Joseph's Hospital, of carcinoma of the prostate.

William Henry Jamieson, Ottawa, Ill.; Rush Medical College, Chicago, 1910; a Fellow, A. M. A.; president of the medical staff of the Ryburn Memorial Hospital; formerly on the staff of the Ottawa Tuberculosis Sanatorium; member of the school board; aged 59; died, August 9, in the State of Wisconsin General Hospital, Madison, of coronary thrombosis.

Philip C. W. Johannes, Chicago; Northwestern University Medical School, Chicago, 1900; clinical assistant in genito-urinary surgery at his alma mater, 1904-1906; member of the Illinois State Medical Society; served during the World War; member of the staffs of the Illinois Masonic Hospital and the Evangelical Hospital of Chicago; aged 60; died, September 8, in St. Margaret's Hospital, Hammond, of injuries received in an automobile collision.

Augustus M. Johnson, Arzenville, Ill.; St. Louis College of Physicians and Surgeons, 1898; aged 61; died, August 14, in a hospital at Beardstown, of multiple cerebral infarcts.

Albert Belcham Keyes, Chicago; Chicago Medical College, 1890; formerly assistant professor of obstetrics and gynecology, Rush Medical College, and professor of gynecology at the Chicago Policlinic; fellow of the American College of Surgeons; served during the World War; gynecologist to the Henrotin Hospital and the Chicago Maternity Hospital; aged 74; died, October 11, at his home in Evanston, Ill., of cerebral thrombosis.

Otis Hardy Maclay, Chicago; Northwestern University Medical School, Chicago, 1901; a Fellow, A. M. A.; member of the American Laryngological, Rhinological and Otological Society; fellow of the American College of Surgeons; past president of the Chicago Laryngological, Rhinological and Otological Society; assistant professor of otolayngology at his alma mater; on the staff of the Wesley Memorial Hospital; aged 63; died, September 5, of coronary thrombosis.

Niels Victor Mikkelsen, Park Ridge, Ill.; Chicago College of Medicine and Surgery, 1910; on the staff of the Lutheran Deaconess Hospital, Chicago; aged 56; died, August 24.

Joseph E. Schallmo, Chicago; Loyola University School of Medicine, Chicago, 1916; aged 62; died, August 5, of chronic myocarditis.

Arthur C. Sells, Aledo, Ill.; Keokuk (Iowa) Medical College, 1892; member of the Illinois State Medical Society; aged 65; died, July 10.

Louis J. Sintzel, Northbrook, Ill.; St. Louis College of Physicians and Surgeons, 1899; for many years health officer of the village of Northbrook; attending physician to St. Anne's Home, Techny; aged 71; died, August 5, of carcinoma of the bladder.

C. Lambert Townsend, Joliet, Ill.; Chicago Medical School, 1922; aged 52; died, July 15, in St. Joseph's Hospital.

Ernest Payne Van Arsdall, Danville, Ill.; Loyola University School of Medicine, Chicago, 1916; past president and secretary of the Cass County Medical Society; aged 48; died, August 14, at the Lakeview Hospital, following a herniotomy.

George F. Washburne, Glen Ellyn, Ill.; Chicago Homeopathic Medical College, 1885; formerly health officer for the board of health of Chicago; at one time physician in charge of the Spring Hill Sanitarium, Hastings-on-the-Hudson, N. Y.; aged 81; died, August 12, of arteriosclerosis.

Harry Percival Woley, Chicago; College of Physicians and Surgeons, Medical Department of Columbia College, New York, 1890; a Fellow A. M. A.; for many years connected with the New York Life Insurance Company; aged 72; died, August 12, in a hospital at Evanston, Ill.

AMNIOTIN most effective in gonorrheal vaginitis

THE MOST RECENT of the increasing number of favorable reports concerning Amniotin is an article* discussing its use in gonorrheal vaginitis in children. The authors' conclusion is significant—"We consider the use of vaginal estrogenic suppositories the most effective method known for the treatment of gonorrheal vaginitis in children."

This is but one of many conditions in which Amniotin is clinically useful. Amniotin (physiologically tested estrogenic substance) is effective in the treatment of dysmenorrhea due to estrin deficiency, in the relief of menopausal symptoms, involutional melancholia, senile vaginitis, missed abortion, uterine inertia in labor, chronic nervous exhaustion, vomiting and nausea of pregnancy, and breast hyperplasia of the lobular type.

Amniotin is available in three dosage forms:

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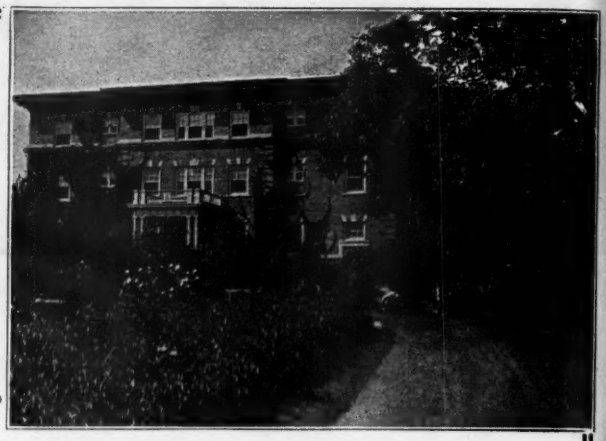

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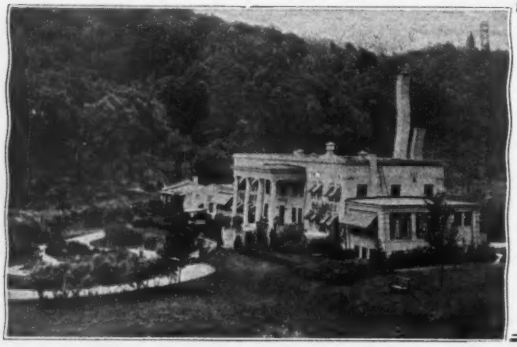

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